

AD-A119 122

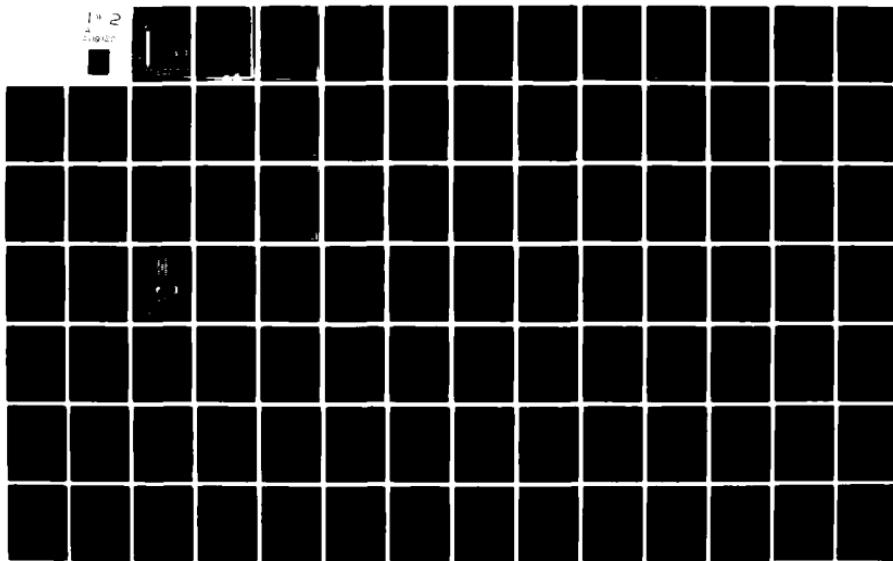
LEADERSHIP AND MANAGEMENT DEVELOPMENT CENTER MAXWELL--ETC F/6 5/1  
FACTOR STABILITY OF THE ORGANIZATIONAL ASSESSMENT PACKAGE (U)

AUG 82 J M HIGHTOWER, L O SHORT

UNCLASSIFIED LMDC-TR-82-1

NL

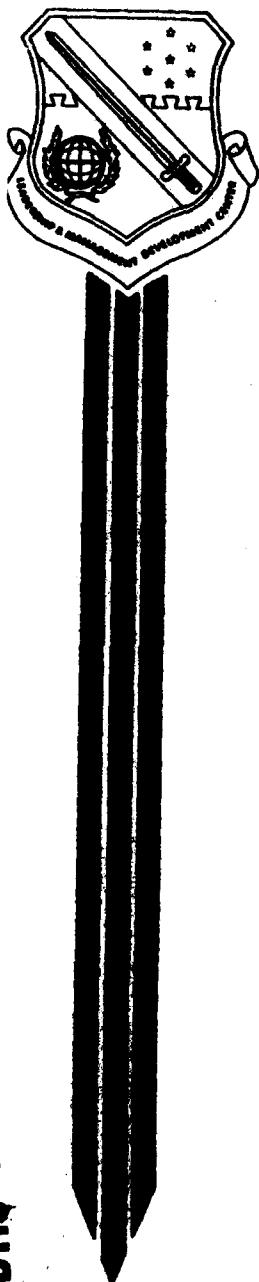
1 2  
3 4



AD A119122

LMDC-TR-82-1

AUGUST 1982



1  
20

FACTOR STABILITY  
OF THE  
ORGANIZATIONAL ASSESSMENT PACKAGE

CAPT JANICE M. HIGHTOWER, USAF  
MAJ LAWRENCE O. SHORT, USAF

AUGUST 1982

DTIC  
ELECTED  
S D  
SEP 10 1982  
A

APPROVED FOR PUBLIC RELEASE, DISTRIBUTION UNLIMITED.

LEADERSHIP AND MANAGEMENT DEVELOPMENT CENTER  
AIR TRAINING COMMAND 82 09 10 101  
Maxwell Air Force Base, Alabama 26112

LMDC-TR-82-1

Technical Reports prepared by the Leadership and Management Development Center (LMDC), Maxwell Air Force Base, Alabama, report a completed research project documented by literature review references, abstract and testing of hypotheses, whether stated or implied. Technical Reports are intended primarily for use within the Air Force, but may be distributed to researchers outside the USAF, both military and civilian.

The views and opinions expressed in this document represent the personal views of the author only, and should not in any way be construed to reflect any endorsement or confirmation by the Department of Defense, the Department of the Air Force, or any other agency of the United States Government.

This report has been reviewed and cleared for open publication and/or public release by the appropriate Office of Public Affairs (PA) in accordance with AFR 190-17 and is releasable to the National Technical Information Service where it will be available to the general public, including foreign nations.

This Technical Report has been reviewed and is approved for publication.

LAWRENCE O. SHORT, Major, USAF  
Chief, Research Operations

LLOYD WOODMAN, JR., Lt Col, USAF  
Director, Research and Analysis

JOHN E. EMMONS  
Colonel, USAF  
Commander

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER LMDC-TR-82-1	2. GOVT ACCESSION NO. AD-A119 122	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Factor Stability of the Organizational Assessment Package		5. TYPE OF REPORT & PERIOD COVERED Final
7. AUTHOR(s) Captain Janice M. Hightower Major Lawrence O. Short		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Directorate of Research and Analysis Leadership and Management Development Center (ATC) Maxwell Air Force Base, Alabama 36112		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Directorate of Research and Analysis Leadership and Management Development Center (ATC) Maxwell Air Force Base, Alabama 36112		12. REPORT DATE August 1982
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		13. NUMBER OF PAGES 133
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report)  Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Attitude survey Organizational Assessment Package OAP Survey Validity		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The Organizational Assessment Package (OAP) is currently undergoing a complete factor-by-factor revision. A part of this effort is reexamining the validity of the survey instrument in the light of data and experience gained from two years of field use. Specifically, this study concerned the consistency of OAP factorial validity across both functional area and demographic groupings. Three measures of factor consistency were used: congruence coefficient, s-index, and root mean square. Results showed excellent and consistent factor solutions across groups and methods of measurement. Discussion is offered		

## ABSTRACT

The Organizational Assessment Package (OAP) is currently undergoing a complete factor-by-factor revision. A part of this effort is reexamining the validity of the survey instrument in the light of data and experience gained from two years of field use. Specifically, this study concerned the consistency of OAP factorial validity across both functional area and demographic groupings. Three measures of factor consistency were used: congruence coefficient, s-index, and root mean square. Results showed excellent and consistent factor solutions across groups and methods of measurement. Discussion is offered regarding results and implications for future use of the OAP.



Accession For	
<input checked="" type="checkbox"/>	Print
<input type="checkbox"/>	File
<input type="checkbox"/>	Transcribed
<input type="checkbox"/>	Photocopy
Classification	
Serial & Catalog Codes	
<input type="checkbox"/>	Serial
<input type="checkbox"/>	Code
<input type="checkbox"/>	Other
Not Special	

*A*

## TABLE OF CONTENTS

	Page
Background . . . . .	1
Purpose of the Study . . . . .	2
Method . . . . .	4
Instrumentation. . . . .	4
Sample and Procedure . . . . .	6
Results. . . . .	10
Factor Structure . . . . .	10
Factor Comparison. . . . .	14
Discussion and Conclusions . . . . .	16
References . . . . .	19
Appendix A: Current OAP Factor Numbers and Names. . . . .	21
Appendix B: The Organizational Assessment Package (OAP) . . . . .	23
Appendix C: OAP Factors and Variables . . . . .	36
Appendix D: Revised OAP Factor Structure and Corresponding Items Across All Functional Area and Demographic Groups . . . . .	55
Appendix E: Results of Factor Comparison Studies. . . . .	82

## LIST OF TABLES

Table		Page
1	Sample Sizes for Comparison Groups	7
2	Factor Analysis Results for Comparison Groups	11
3	Factors in Factor Analysis Solution Pre-Intervention Data Base	12
4	Order of Factors in Factor Analysis Solution	15
5	S-Index Significance Testing	17

### Background

The validity of a survey instrument is often defined as the extent to which the instrument measures what it intends to measure (Carmines & Zeller, 1979). Since validity is also often considered the most essential feature of an instrument, its adequate and accurate determination generally receives a high priority in instrument development, evaluation, and, if necessary, redesign.

Despite its importance, however, validity is often complex to deal with in that it is a multi-faceted concept (Stanley & Hopkins, 1972), which requires continual monitoring and updating throughout the life of an instrument (Nunnally & Durham, 1975). The type of validity studied must also be matched to the purposes and goals of the validity study. This point is well made by Cronbach and Meehl (1955) who differentiate among types of validity by showing that each type involves some slightly different emphasis on the criterion measure. One particular type of validity, construct validity, is most appropriate for use when no definite, concrete, specific, or fully valid criterion measure is available. This type of validity seemed most appropriate in relation to the Organizational Assessment Package (OAP), the survey instrument which is the subject of study.

Considering Cronbach and Meehl's (1955) subtypes of construct validity, some evidence relating to OAP construct validity is already available. Short and Hamilton (1981) presented evidence essentially supporting the internal structure and change-over-occasions aspects of construct validity. Prior to

this study, OAP factors were expected to be internally consistent as assessed by Cronbach's alpha procedure and were expected to retain significant test-retest correlations across both five-week and six-month time intervals. It was further expected that the six-month correlations would be lower than those for the five-week intervals because of both the longer interval and the necessity that factors be sensitive to actual organizational changes rather than being artificially rigid. These expectations were confirmed with the exception of some of the two or three item factors that seemed to lack either internal consistency or stability. Short and Wilkerson (1981) offered support for the group differences aspects of OAP construct validity across major functional area groupings. This study was important to determine if OAP results would reflect known, meaningful and predictable differences among functional area groups and to determine if OAP factors reflected a higher degree of between-group variance than within-group variance when comparing functional area groups. Differences observed in this study seemed consistent, strong and predictable and also held across logical groupings of factors. Results were more equivocal, however, in testing hypotheses concerning specific pairs comparisons within factors.

#### Purpose of the Study

The purpose of the current study was, therefore, twofold. The first purpose was to examine factor stability across selected functional area and demographic groups. The second purpose of the study is related to the future of the OAP. The instrument is currently undergoing a complete factor-by-factor revision after two years of field use. The current report will provide important information helpful for decisions about which factors and items to retain, revise, or delete during the revision of the survey instrument.

Factor stability is a topic of general interest to both civilian (see, for example, Athanasou, O'Gorman, & Meyer, 1981; Piersel & Reynolds, 1981) and military (Kirk, Turney, & Cohen, 1978) survey researchers. It is also a topic of specific interest in regard to the OAP. The OAP must be used as both a diagnostic and an evaluation tool. As such, the stability of the instrument over the approximately six-week period between data collection and feedback and the approximately six-month interval between data gathering and evaluation administrations of the OAP is critical. Few issues are more important, then, than the stability of the factor structure across both the time intervals as well as across functional area groups. Failure to demonstrate these kinds of factorial validity would cause considerable doubt as to the value of the OAP as either a diagnostic or an evaluation tool. Whether observed group differences following consulting were due to changes in the group or to measurement error and instrument instability could be considered an open question. Demonstrating factor stability would, therefore, go a long way toward controlling for instrumentation (Campbell & Stanley, 1963) as a rival hypothesis for group change due to a consulting effect.

Additionally, the study was important as an extension to studies of internal consistency and stability by test-retest measures. Within LMDC's consulting methodology, separate random samples of an organization are selected from survey time one (pre-intervention) to survey time two (post-intervention). Since traditional stability studies make use of the same subjects from time one to time two, many test-retest indices may be little more than an index of subject memory. This study allows a check on stability

results by using a different sample from pre to post. Results showing stable factor structures would, therefore, strongly suggest that observed consistency is actually present in the instrument and could not be attributed to memory or other subject response sets or biases.

Finally, demonstrating factorial stability seems to be an important consideration in determining type of change following a consultation visit. Factor instability would almost certainly cause any change following a consulting intervention to be considered as beta change (see for example, Terborg, Howard, & Maxwell, 1980; Golembiewski, Billingsley, & Yeager, 1976). If factor structures can be considered stable across time, and functional area and demographic groups, consideration of pre-post self-report changes would have much more credibility as measuring either alpha or gamma change.

#### Method

##### Instrumentation

The OAP is a 109-item survey questionnaire designed jointly by the Air Force Human Resources Laboratory and the Leadership and Management Development Center to aid LMDC in its mission to: (a) provide management consultation services to Air Force commanders on request, (b) to provide leadership and management training, and (c) to conduct research on Air Force systemic issues with information within the accumulated data base. Supporting developmental research for the OAP is provided in Hendrix and Halverson (1979a; 1979b) and Hendrix (1979).

Administration of the OAP is the first step in the consultation process. The survey is given to a stratified random sample of the organization to which LMDC has been invited. The results of the survey are an important feature in the assessment of the organization. The results are handled in a confidential manner between LMDC and the client. After approximately five to six weeks for analysis, feedback of data is provided to commanders and supervisors within the organization.

When specific problems are encountered, a consultant and supervisor develop a management action plan designed to resolve the problem at that level of the organization. Within six to nine months, the consulting team returns to readminister the survey instrument as a means to help assess the impact of the consulting process.

The data from each OAP administration effort are stored in a cumulative data base currently containing over 100,000 records. These data are aggregated by work group codes developed for this instrument. The data may be recalled by demographics such as personnel category, age, sex, Air Force Specialty Code (AFSC), pay grade, time in service, and educational level. The ninety-three attitudinal items are combined into factors which cover job content, job interferences, and various types of supervisory and organizational areas. More detailed information about the OAP is found in the appendices. Current OAP factor numbers and names are presented in Appendix A. A copy of the OAP instrument is contained in Appendix B, and the OAP Output Package containing current OAP factors and the items that compose them is contained in Appendix C.

### Sample and Procedure

In order to study factor stability, responses to the pre-intervention OAP were drawn from the data base and aggregated by major functional area and demographic groupings to form independent groups. Functional area groupings were wing/group staff, resources, maintenance, operations, medical, missiles, communications, and unique, a category containing people in organizations with scientific and technical orientation. The demographic groupings included sex, personnel category (officer, enlisted, civilian), and ethnic group (white, black, hispanic, and other). In addition, factor structure from survey time one (pre-intervention) results was compared to survey time two (post-intervention) results. The number of people in each group may vary by factor because of individual response patterns to the instrument, and figures presented represent the total number of cases in the data base by functional area or demographic grouping for which responses were available on all 93 attitudinal items. The sample sizes for all comparison groups are contained in Table 1. Principal component analyses were accomplished with a principle factor solution using a varimax rotation from the procedures contained in the Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner & Bent, 1975; Hull & Nie, 1981). The factor solution cutoff criterion was an eigenvalue of 1.00. With the exception of the male-female and survey time one-survey time two comparisons which were done directly, all of the comparisons were accomplished by comparing the factor solution for a specific group to the factor solution for the OAP pre-intervention data base exclusive of that group.

Table 1  
Sample Sizes for Comparison Groups

<u>Group</u>	<u>N</u>
Wing/Group	12758
Resources	4827
Maintenance	8295
Operations	2117
Medical	2426
Missiles	961
Communications	988
Unique	8261
Officer	5345
Enlisted	30508
Civilian	8257
White	34333
Black	4863
Hispanic	2128
Other	3138
Male	37633
Female	6856
Survey Time 1	44728
Survey Time 2	18370

We are aware of the technical differences between principal components analysis and factor analysis, *per se*, especially the use of *ls* rather than commonalities in the principal diagonals of the correlation matrix. Components analysis was chosen, however, for several reasons as discussed by Mulaik (1972, p. 174). First, results using components analysis often do not differ greatly from those expected using common factor analysis. Second, factor scores can be directly computed rather than estimated. Finally, component analysis seems more appropriate when the major intent is to summarize a set of variables into a smaller number of hopefully orthogonal variables, as is the case here. Therefore, principal components was the method of choice. We have, however, used the term "factor" to refer to resulting components to avoid confusion for the casual reader even though we recognize the resulting indices were not, strictly speaking, derived by "factor analysis."

It should also be noted at this point that we are dealing with what Levine (1977) calls factor matrix comparison procedures, not target analysis procedures. In this case, all factor structures compared are empirically derived, none being a theoretically hypothesized structure. As such, the factor matrix comparison procedures were the method of choice. If the selection of factor matrix comparison procedures over target matrix procedures seemed clear, however, the method of choice for doing the factor comparisons was less clear. Three methods appeared to be the most likely candidates: the root mean square (RMS), the congruence coefficient (CC), the salient variable similarity index (S). Since each of these methods had some drawbacks, however, we elected to follow the suggestions of Cattell, Balear, Horn & Nesselroade (1969) and use more than one method to make the comparisons.

While a detailed analysis of the three comparison methods is beyond the scope of the current study, an excellent discussion of the positive and negative aspects of each is contained in Levine (1977). Although the congruence coefficient (Harman, 1967) is the best known procedure and the RMS is the most basic factor comparison procedure, Levine notes some disadvantages of both: RMS and CC are sensitive to both pattern differences and magnitude of factor loadings when attention should be directed only to differences in patterns; and tests of significance of matches are precluded due to problems of defining the sampling distribution of both procedures. Since the S-index does have at least an approximate test of significance and is sensitive to pattern similarities/differences rather than magnitude of factor loadings, comparison of the results of all three procedures was thought to provide a more precise estimate of the extent of factor matches than could be obtained from any single procedure.

The factor loading comparisons, using the three comparison techniques, were accomplished using computer programs written for this project. The programs used as input data the factor loading matrices output by the SPSS factor analysis procedure. For each program run, the data set consisted of the factor loadings for a group and the loadings for the pre-intervention data base exclusive of that group. The program output is a matrix of congruence coefficients, S-indices, or RMS values, depending on the specific program, calculated for all possible factor pairs between the two solutions.

## Results

### Factor Structure

Results of the revised factor structure may be seen in the tables in Appendix D. These tables contain the factor loadings for the 13 interpretable factors across all functional area and demographic groups. Variables were assigned to factors based on two criteria. First, loadings needed to be .30 or higher for inclusion. Since these data were being used for purposes of instrument revision, however, another criterion was necessary so that all existing OAP variables could be assigned against a factor. The second criterion, then, was that each variable was assigned to the factor on which it loaded most highly. This criterion was used to identify low loading or complex items which became strong candidates for exclusion from the instrument if not justifiable on content grounds. As may be seen from Table D, no items loaded lower than .30, and the occurrence of complex items was very rare. The result was a set of fairly "clean" factor solutions.

Most groups showed a solution with 13 interpretable factors and one uninterpretable factor. In this case, an uninterpretable factor consisted of an item or pattern of items that could not be meaningfully labeled. In four cases, two uninterpretable factors appeared, and in two cases, three uninterpretable factors appeared. These results are summarized in Table 2 in the text along with the percentage of the variance accounted for by the factor solution for each group. Table 3 is a list of the factors common to the analyses for all the groups, the order of the factors for the pre intervention data base, and the amount of variance accounted for by each of the factors.

**Table 2**  
**Factor Analysis Results for Comparison Groups**

<u>Group</u>	<u># Factors in Solution*</u>	<u>% Variance Accounted For</u>
Wing/Group	14	64.8
Resources	14	64.1
Maintenance	15	62.2
Operations	15	63.2
Medical	14	62.5
Missiles	16	65.2
Communications	16	65.4
Unique	14	63.9
Officers	15	64.0
Enlisted	14	62.5
Civilians	14	64.1
White	14	63.4
Black	14	62.2
Hispanic	14	64.2
Other	14	64.3
Male	14	63.3
Female	15	64.3
Survey Time 1	14	63.3
Survey Time 2	14	66.0

\*The number of factors represents total number extracted for each group both interpretable and uninterpretable.

**Table 3**  
**Factors in Factor Analysis Solution**  
**Pre-Intervention Data Base**

<u>Factor Number</u>	<u>Factor Name*</u>	<u>Eigenvalue</u>	<u>Percent of Variance</u>	<u>Cumulative Percent</u>
1	Supervision	27.97	30.1	30.1
2	Organizational Climate	6.46	6.9	37.0
3	Work Group Effectiveness	4.59	4.9	41.9
4	Task Characteristics	2.93	3.1	45.1
5	Job Role Pride and Satisfaction	2.65	2.9	48.0
6	Need for Enrichment	2.55	2.7	50.7
7	Task Autonomy	2.24	2.4	53.1
8	Job Performance Goals	1.76	1.9	55.0
9	Advancement/Recognition	1.65	1.8	56.8
10	Work Support	1.42	1.5	58.3
11	Work Interferences	1.34	1.4	59.7
12	Work Repetition	1.14	1.2	61.0
13	Desired Repetitive Easy Tasks	1.10	1.2	62.1

\*Based on item content  
 Numbers of items on each factor may be seen in the Tables in Appendix D.

Regarding the tables in Appendix D, factor loadings in parentheses are those that are not the highest for a given variable and group. For example, consider Table 1, Appendix D. Variables 404 through 445 loaded higher on the Supervision factor than on any other factor across all groups. Variables 215 and 711, however, loaded highest on the Supervision factor for some groups but not others. If a variable loaded highest on the Supervision factor for at least one group, its loadings were reported for all groups. Where a variable loads higher on another factor, the loading is put in parentheses. Therefore, variable 711 in Table 1, Appendix D, loads highest on the Supervision factor only for the medical group. For the other groups, this variable loads higher on other factors, as indicated by the loadings being expressed in parentheses.

Comparing the current OAP factor structure in Appendix A with the revised structure in Appendix D, some differences can be observed. Two current factors 811 (Pride) and 822 (Job Satisfaction) converged in the revised structure. In addition, current factors 820 (Organizational Communications Climate) and 824 (General Organizational Climate) did not separate in the revised structure as they do in the current structure. The same was true of the Supervision factors, 818 (Management/Supervision) and 819 (Supervisory Communications Climate). All other factors seemed consistent between current and revised structures with the exception of some slight item deletion and shift among the factors which may be seen by comparing Appendix C with Appendix D.

### Factor Comparison

Results of factor comparison are given in the tables in Appendix E. Comparisons based on congruence coefficients, S-indices, and root mean squares are provided for each functional area and demographic group. By way of explanation, the rows and columns in each table may be identified in terms of content by reference to Table 4, which shows the order of factors identified by amount of variance accounted for. Inspection of the tables in Appendix E shows consistently high results for matching factors as evidenced by the main diagonals of the tables. Even in those cases where larger coefficients are off the main diagonal, factors still match by content if not by order in the solution. The order of the factors in the solution was considered to have little practical significance, since this often reflects a very small difference in amount of variance accounted for. As such, results for the revised factor solution are consistent by content, if not always by number, regardless of the analytic procedures used.

In interpreting the values in the tables, it should be noted that the possible range of RMS values is from zero (a perfect match) to a maximum value of two (all loadings equal to unity but having opposite signs). For S-indices and congruence coefficients, a value of  $\pm 1$  indicates a perfect match and a value of zero indicates no congruence between factors. Congruence coefficients ranged from .90 to .99 with most being .99 for matching factors. S-indices ranged from .66 to .98 with most values falling between .80 and .89 (all significant  $p < .05$ ). RMS values fell between .01 and .06 with most values being either .01 or .02. Further, when variables were

Table 4  
Order of Factors in Factor Analysis Solution  
(Factors as Identified by Item Content)

Group	Wing/Group	Super-Vision	Organizational Climate	Work Group Effectiveness	Task Characteristics	Job Role	Pride & Satisfaction	Need for Enrichment	Task Autonomy	Job Performance Goals	Advancement/Recognition	Work Interferences	Work Support	Work Repetition	Desired Repetitive Easy Tasks
	Data Base Except Wing/Group Resources	1	2	3	4	6	5	6	7	5	8	9	10	11	12
	Data Base Except Resources Maintenance	1	2	3	4	5	4	5	6	7	6	9	10	11	12
	Data Base Except Maintenance Operations	1	2	3	4	5	3	4	5	6	7	8	9	10	11
	Data Base Except Operations Medical	1	2	3	4	5	4	5	6	7	8	9	10	11	12
	Data Base Except Medical Missiles	1	2	3	4	5	4	5	6	7	8	9	10	11	12
	Data Base Except Missiles Communications	1	2	3	4	5	4	5	6	7	8	9	10	11	12
	Data Base Except Communications Unique	1	2	3	4	5	4	5	6	7	8	9	10	11	12
	Data Base Except Unique Male	1	2	3	4	5	4	5	6	7	8	9	10	11	12
	Female	1	2	3	4	5	4	5	6	7	8	9	10	11	12
	White	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Data Base Except White Black	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Data Base Except Black Hispanic	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Data Base Except Hispanic Others (Race)	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Data Base Except Others Officers	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Data Base Except Officers Enlisted	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Data Base Except Enlisted Civilians	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Data Base Except Civilians Survey Time 1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Survey Time 2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

included only in the factor on which they loaded most highly, examination of factors across the groups studied revealed that the factors consistently contained the same variables, especially when only the variables which loaded strongly on a factor ( $> .40$ ) were considered. The order of the factors also showed a great deal of consistency across groups, as can be seen from Table 4.

As previously noted, one of the advantages of the S-index is the availability of significance testing for the derived indices. Using the results of the simulation study by Cattel et al (1969), the statistical significance of S-indices were evaluated. As an example, the results for one of the functional areas (medical) are shown in Table 5. The S-indices were calculated on a factor-by-factor bases with the hyperplane limits adjusted so that hyperplane counts would fall in the range of the tables. It is clear that all S-index values for corresponding factors are well above the critical value of .38 ( $p < .0005$ ).

#### Discussion and Conclusions

Comparing the results in Table 3 with the current OAP factor structure as seen in Appendix B, some differences may be seen. These differences are not surprising. Much more extensive and representative data are available now that were not available in 1979 during development. The different factor structure should be viewed as a sharpening of the factors, making them more efficient and effective. Future research in this area should focus on measurement of factor stability over a period of two or three years to be certain the passage of time does not alter factor solutions.

Table 5  
S-Index Significance Testing

Factors For:

<u>Medical</u>	<u>Data Base Except Medical</u>	<u>Hyperplane Limits</u>	<u>% of Values In Hyperplane</u>	<u>s</u>	<u>v: p(s&gt;v) &lt; 0.0005</u>
1	1	<u>+0.25</u>	67.7	0.933	0.38
2	2	<u>+0.25</u>	65.6	0.9375	0.38
3	3	<u>+0.12</u>	68.8	0.69	0.38
4	5	<u>+0.12</u>	63.44	0.853	0.38
5	4	<u>+0.1</u>	60.2	0.84	0.38
6	6	<u>+0.1</u>	79.0	0.67	0.38
7	7	<u>+0.1</u>	61.8	0.73	0.38
8	8	<u>+0.1</u>	66.7	0.81	0.38
9	9	<u>+0.1</u>	60.8	0.85	0.38
10	10	<u>+0.1</u>	81.7	0.71	0.38
11	11	<u>+0.1</u>	85.5	0.74	0.38
12	12	<u>+0.1</u>	79.6	0.84	0.38
13	13	<u>+0.05</u>	66.1	0.54	0.38

Concerning the purposes of the study, results supported the stability of the revised OAP factor structure, reducing the risk of instrumentation problems. In addition, obtaining consistent factor structures even when using separate samples in comparing Survey Time 1 with Survey Time 2 lend important support to the notion that observed item and factor reliability is not due principally to memory or response set bias. Finally, demonstration of a stable factor structure helps lessen the possibility that observed changes following a consulting visit are beta changes. With this possibility lessened, the alternate possibility of alpha or gamma change is more likely.

In general, then, results provided strong and systematic support for the consistency of the OAP revised factor structure across both functional area and demographic groups. Further, this consistency was observed regardless of the method of computing factor matching values. The high values shown when comparing Survey Time 1 with Survey Time 2 results were especially encouraging, since they indicate a high degree of instrument stability across a six month consulting intervention. This finding is especially important when combined with group difference studies. Taken together, these results show an excellent combination of stability, consistency, and sensitivity to change that supports the use of the OAP as both a data gathering and evaluation instrument and point the way for revising and refining the OAP factor structure.

### References

Athanasiou, J. A., O'Gorman, J., & Meyer, E. Factorial validity of the vocational interest scales of the Holland Vocational Preference Inventory for Australian high school students. Educational and Psychological Measurement, 1981, 41, 523-527.

Campbell, D. T., & Stanley, J. C. Experimental and quasi-experimental designs for research. Chicago: Rand McNally, 1963.

Carmines, E. G., & Zeller, R. A. Reliability and validity assessment. Beverly Hills, CA: Sage, 1979.

Cattell, R. B., Balcar, K. R., Horn, J. L., & Nesselroade, J. R. Factor matching procedures: An improvement of the  $\delta$  index; with tables. Educational and Psychological Measurement, 1969, 29, 781-792.

Cronbach, L. J., & Meehl, P. E. Construct validity in psychological tests. Psychological Bulletin, 1955, 52, 281-302.

Golembiewski, R. T., Billingsley, K., & Yeager, S. Measuring change and persistence in human affairs: Types of change generated by OD designs. Journal of Applied Behavioral Science, 1976, 12, 133-157.

Harman, H. H. Modern factor analysis. Chicago: University of Chicago Press, 1967.

Hendrix, W. H. Organizational assessment indices of effectiveness (AFHRL-TR-79-46). Brooks AFB, TX: Air Force Human Resources Laboratory, 1979.

Hendrix, W. H., & Halverson, V. B. Organizational survey assessment package for Air Force organizations (AFHRL-TR-78-93). Brooks AFB, TX: Air Force Human Resources Laboratory, 1979. (a)

Hendrix, W. H., & Halverson, V. B. Situational factor identification in Air Force Organizations (AFHRL-TR-79-10). Brooks AFB, TX: Air Force Human Resources Laboratory, 1979. (b)

Hull, C. H., & Nie, N. H. SPSS update 7-9. New York: McGraw-Hill, 1981.

Kirk, R. J., Turney, J. R., & Cohen, S. L. Factor stability of the Work Environment Questionnaire (Research Memorandum 78-11). Arlington, VA: U. S. Army Research Institute for Behavioral and Social Sciences, 1978.

Levine, M. S. Canonical analysis and factor comparison. Beverly Hills, CA: Sage, 1977.

Mulaik, S. The foundations of factor analysis. New York: McGraw-Hill, 1972.

Nie, N. H., Hull, C. N., Jenkins, J. G., Steinbrenner, K., & Bent, D. H. Statistical package for the social sciences (2nd ed.). New York: McGraw-Hill, 1975.

Nunally, J. C., & Durham, R. L. Validity, reliability, and special problems of measurement in evaluation research. In E. L. Struening and M. Guttentag (Eds.), Handbook of evaluation research, Vol. 1. Beverly Hills, CA: Sage, 1975.

Piersel, W. C., & Reynolds, C. R. Factorial validity of item classification on the Boehm Test of Basic Concepts (BTBC), forms A and B. Educational and Psychological Measurement, 1981, 41, 579-583.

Short, L. O., & Hamilton, K. L. An examination of the reliability of the Organizational Assessment Package (LMDC-TR-81-2). Maxwell AFB, AL: Leadership and Management Development Center, 1981.

Short, L. O., & Wilkerson, D. A. An examination of the construct validity of the Organizational Assessment Package. Proceedings of the 23rd Annual Conference of the Military Testing Association (Vol. II, pp. 1089-1098). Arlington, VA: U.S. Army Research Institute, 1981.

Stanley, J. C., & Hopkins, K. D. Educational and psychological measurement and evaluation. Englewood Cliffs, NJ: Prentice-Hall, 1972.

Terborg, J. R., Howard, G. S., & Maxwell, S. E. Evaluating planned organizational change: A method of assessing alpha, beta, and gamma change. Academy of Management Review, 1980, 5 (1), 109-121.

APPENDIX A  
CURRENT OAP FACTOR NUMBERS  
AND NAMES

<u>Factor Number</u>	<u>Factor Name</u>
800	Skill Variety
801	Task Identity
802	Task Significance
804	Job Feedback
805	Work Support
806	Need for Enrichment (Job Desires)
810	Job Performance Goals
811	Pride
812	Task Characteristics
813	Task Autonomy
814	Work Repetition
816	Desired Repetitive Easy Tasks
817	Advancement/Recognition
818	Management-Supervision
819	Supervisory Communications Climate
820	Organizational Communications Climate
821	Perceived Productivity (Work Group Effectiveness)
822	Job Satisfaction
823	Job Related Training
824	General Organizational Climate

APPENDIX B

THE ORGANIZATIONAL ASSESSMENT PACKAGE

EXPIRATION DATE: 31 Oct 1981

SCN 81- 14

#### GENERAL INFORMATION

The leaders of your organization are genuinely interested in improving the overall conditions within their areas of responsibility. Providing a more satisfying Air Force way of life and increasing organizational effectiveness are also goals. One method of reaching these goals is by continual refinement of the management processes of the Air Force. Areas of concern include job related issues such as leadership and management; training and utilization; motivation of and concern for people; and the communication process.

This survey is intended to provide a means of identifying areas within your organization needing the greatest emphasis in the immediate future. You will be asked questions about your job, work group, supervisor, and organization. For the results to be useful, it is important that you respond to each statement thoughtfully, honestly, and as frankly as possible. Remember, this is not a test, there are no right or wrong responses.

Your completed response sheet will be processed by automated equipment, and be summarized in statistical form. Your individual response will remain confidential, as it will be combined with the responses of many other persons, and used for organizational feedback and possibly Air Force wide studies.

#### KEY WORDS

The following should be considered as key words throughout the survey:

- Supervisor: The person to whom you report directly.
- Work Group: All persons who report to the same supervisor that you do.
- Organization: Your squadron. However, if you work in staff/support agencies, the division or directorate would be your organization.

## INSTRUCTIONS

1. All statements may be answered by filling in the appropriate spaces on the response sheet provided. If you do not find a response that fits your case exactly, use the one that is the closest to the way you feel.
2. Be sure that you have completed Section 1 of the response sheet, as instructed by the survey administrator, before beginning Section 2.
3. Please use the pencil provided, and observe the following:
  - Make heavy black marks that fill the spaces.
  - Erase cleanly any responses you wish to change.
  - Make no stray markings of any kind on the response sheet.
  - Do not staple, fold or tear the response sheet.
  - Do not make any markings on the survey booklet.
4. The response sheet has a 0-7 scale. The survey statements normally require a 1-7 response. Use the zero (0) response only if the statement truly does not apply to your situation. Statements are responded to by marking the appropriate space on the response sheet as in the following example:

Using the scale below, evaluate the sample statement.

1 = Strongly disagree	5 = Slightly agree
2 = Moderately disagree	6 = Moderately agree
3 = Slightly disagree	7 = Strongly agree
4 = Neither agree nor disagree	

Sample Statement. The information your work group receives from other work groups is helpful.

If you moderately agree with the sample statement, you would blacken the oval (6) on the response sheet.

Sample Response: NA (0) (1) (2) (3) (4) (5) (6) (7)

5. When you have completed the survey, please turn in the survey materials as instructed in the introduction.

### BACKGROUND INFORMATION

This section of the survey concerns your background. The information requested is to insure that the groups you belong to are accurately represented and not to identify you as an individual. Please use the separate response sheet and darken the oval which corresponds to your response to each question.

1. Total years in the Air Force:

1. Less than 1 year.
2. More than 1 year, less than 2 years
3. More than 2 years, less than 3 years.
4. More than 3 years, less than 4 years.
5. More than 4 years, less than 8 years.
6. More than 8 years, less than 12 years.
7. More than 12 years.

2. Total months in present career field.

1. Less than 1 month.
2. More than 1 month, less than 6 months.
3. More than 6 months, less than 12 months.
4. More than 12 months, less than 18 months.
5. More than 18 months, less than 24 months.
6. More than 24 months, less than 36 months.
7. More than 36 months.

3. Total months at this station:

1. Less than 1 month.
2. More than 1 month, less than 6 months.
3. More than 6 months, less than 12 months.
4. More than 12 months, less than 18 months.
5. More than 18 months, less than 24 months.
6. More than 24 months, less than 36 months.
7. More than 36 months.

4. Total months in present position:

1. Less than 1 month.
2. More than 1 months, less than 6 months.
3. More than 6 months, less than 12 months.
4. More than 12 months, less than 18 months.
5. More than 18 months, less than 24 months.
6. More than 24 months, less than 36 months.
7. More than 36 months.

5. Your Ethnic Group is:

1. American Indian or Alaskan Native
2. Asian or Pacific Islander
3. Black, not of Hispanic Origin
4. Hispanic
5. White, not of Hispanic Origin
6. Other

6. Your highest education level attained is:

1. Non-high school graduate
2. High school graduate or GED
3. Less than two years college
4. Two years or more college
5. Bachelors Degree
6. Masters Degree
7. Doctoral Degree

7. Highest level of professional military education (residence or correspondence):

0. None or not applicable
1. NCO Orientation Course or USAF Supervisor Course (NCO Phase 1 or 2)
2. NCO Leadership School (NCO Phase 3)
3. NCO Academy (NCO Phase 4)
4. Senior NCO Academy (NCO Phase 5)
5. Squadron Officer School
6. Intermediate Service School (i.e., ACSC, AFSC)
7. Senior Service School (i.e., AWC, ICAF, NWC)

8. How many people do you directly supervise?

1. None	4. 3
2. 1	5. 4 to 5
3. 2	6. 6 to 8
	7. 9 or more

9. For how many people do you write performance reports?

1. None	4. 3
2. 1	5. 4 to 5
3. 2	6. 6 to 8
	7. 9 or more

10. Does your supervisor actually write your performance reports?

1. yes	2. no	3. not sure
--------	-------	-------------

11. Which of the following "best" describes your marital status?

- 0. Not Married
- 1. Married: Spouse is a civilian employed outside home.
- 2. Married: Spouse is a civilian employed outside home-geographically separated.
- 3. Married: Spouse not employed outside home.
- 4. Married: Spouse not employed outside home-geographically separated.
- 5. Married: Spouse is a military member.
- 6. Married: Spouse is a military member-geographically separated.
- 7. Single Parent.

12. What is your usual work schedule?

- 1. Day shift, normally stable hours.
- 2. Swing shift (about 1600-2400)
- 3. Mid shift (about 2400-0800)
- 4. Rotating shift schedule
- 5. Day or shift work with irregular/unstable hours.
- 6. Frequent TDY/travel or frequently on-call to report to work.
- 7. Crew schedule.

13. How often does your supervisor hold group meetings?

1. Never	4. Weekly
2. Occasionally	5. Daily
3. Monthly	6. Continuously

14. How often are group meetings used to solve problems and establish goals?

1. Never	3. About half the time
2. Occasionally	4. All of the time

15. What is your aeronautical rating and current status?

1. Nonrated, not on aircrew	3. Rated, in crew/operations job
2. Nonrated, now on aircrew	4. Rated, in support job

16. Which of the following best describes your career or employment intentions?

- 1. Planning to retire in the next 12 months
- 2. Will continue in/with the Air Force as a career
- 3. Will most likely continue in/with the Air Force as a career
- 4. May continue in/with the Air Force
- 5. Will most likely not make the Air Force a career
- 6. Will separate/terminate from the Air Force as soon as possible

### JOB INVENTORY

Below are items which relate to your job. Read each statement carefully and then decide to what extent the statement is true of your job. Indicate the extent to which the statement is true for your job by choosing the phrase which best represents your job.

1 = Not at all	5 = To a fairly large extent
2 = To a very little extent	6 = To a great extent
3 = To a little extent	7 = To a very great extent
4 = To a moderate extent	

Select the corresponding number for each question and enter it on the separate response sheet.

17. To what extent does your job require you to do many different things, using a variety of your talents and skills?
18. To what extent does your job involve doing a whole task or unit of work?
19. To what extent is your job significant, in that it affects others in some important way?
20. To what extent does your job provide a great deal of freedom and independence in scheduling your work?
21. To what extent does your job provide a great deal of freedom and independence in selecting your own procedures to accomplish it?
22. To what extent are you able to determine how well you are doing your job without feedback from anyone else?
23. To what extent do additional duties interfere with the performance of your primary job?
24. To what extent do you have adequate tools and equipment to accomplish your job?
25. To what extent is the amount of work space provided adequate?
26. To what extent does your job provide the chance to know for yourself when you do a good job, and to be responsible for your own work?
27. To what extent does doing your job well affect a lot of people?
28. To what extent does your job provide you with the chance to finish completely the piece of work you have begun?

1 = Not at all  
2 = To a very little extent  
3 = To a little extent  
4 = To a moderate extent

5 = To a fairly large extent  
6 = To a great extent  
7 = To a very great extent

29. To what extent does your job require you to use a number of complex skills?
30. To what extent does your job give you freedom to do your work as you see fit?
31. To what extent are you allowed to make the major decisions required to perform your job well?
32. To what extent are you proud of your job?
33. To what extent do you feel accountable to your supervisor in accomplishing your job?
34. To what extent do you know exactly what is expected of you in performing your job?
35. To what extent are your job performance goals difficult to accomplish?
36. To what extent are your job performance goals clear?
37. To what extent are your job performance goals specific?
38. To what extent are your job performance goals realistic?
39. To what extent do you perform the same tasks repeatedly within a short period of time?
40. To what extent are you faced with the same type of problem on a weekly basis?
41. To what extent are you aware of promotion/advancement opportunities that affect you?
42. To what extent do co-workers in your work group maintain high standards of performance?
43. To what extent do you have the opportunity to progress up your career ladder?
44. To what extent are you being prepared to accept increased responsibility?
45. To what extent do people who perform well receive recognition?
46. To what extent does your work give you a feeling of pride?

1 = Not at all  
2 = To a very little extent  
3 = To a little extent  
4 = To a moderate extent

5 = To a fairly large extent  
6 = To a great extent  
7 = To a very great extent

47. To what extent do you have the opportunity to learn skills which will improve your promotion potential?
48. To what extent do you have the necessary supplies to accomplish your job?
49. To what extent do details (tasks not covered by primary or additional duty descriptions) interfere with the performance of your primary job?
50. To what extent does a bottleneck in your organization seriously affect the flow of work either to or from your group?

#### JOB DESIRES

The statements below deal with job related characteristics. Read each statement and choose the response which best represents how much you would like to have each characteristic in your job.

In my job, I would like to have the characteristics described:

1 = Not at all  
2 = A slight amount  
3 = A moderate amount  
4 = A fairly large amount

5 = A large amount  
6 = A very large amount  
7 = An extremely large amount

51. Opportunities to have independence in my work.
52. A job that is meaningful.
53. An opportunity for personal growth in my job.
54. Opportunities in my work to use my skills.
55. Opportunities to perform a variety of tasks.
56. A job in which tasks are repetitive.
57. A job in which tasks are relatively easy to accomplish.

## SUPERVISION

The statements below describe characteristics of managers or supervisors. Indicate your agreement by choosing the phrase which best represents your attitude concerning your supervisor.

1 = Strongly disagree	5 = Slightly agree
2 = Moderately disagree	6 = Moderately agree
3 = Slightly disagree	7 = Strongly agree
4 = Neither agree nor disagree	

Select the corresponding number for each statement and enter it on the separate response sheet.

58. My supervisor is a good planner.
59. My supervisor sets high performance standards.
60. My supervisor encourages teamwork.
61. My supervisor represents the group at all times.
62. My supervisor establishes good work procedures.
63. My supervisor has made his responsibilities clear to the group.
64. My supervisor fully explains procedures to each group member.
65. My supervisor performs well under pressure.
66. My supervisor takes time to help me when needed.
67. My supervisor asks members for their ideas on task improvements.
68. My supervisor explains how my job contributes to the overall mission.
69. My supervisor helps me set specific goals.
70. My supervisor lets me know when I am doing a good job.
71. My supervisor lets me know when I am doing a poor job.
72. My supervisor always helps me improve my performance.
73. My supervisor insures that I get job related training when needed.
74. My job performance has improved due to feedback received from my supervisor.

75. When I need technical advice, I usually go to my supervisor.
76. My supervisor frequently gives me feedback on how well I am doing my job.

#### WORK GROUP PRODUCTIVITY

The statements below deal with the output of your work group. The term "your work group" refers to you and your co-workers who work for the same supervisor. Indicate your agreement with the statement by selecting the phrase which best expresses your opinion.

1 = Strongly disagree	4 = Neither agree nor disagree
2 = Moderately disagree	5 = Slightly agree
3 = Slightly disagree	6 = Moderately agree
	7 = Strongly agree

Select the corresponding number for each statement and enter it on the separate response sheet.

77. The quantity of output of your work group is very high.
78. The quality of output of your work group is very high.
79. When high priority work arises, such as short suspenses, crash programs, and schedule changes, the people in my work group do an outstanding job in handling these situations.
80. Your work group always gets maximum output from available resources (e.g., personnel and material).
81. Your work group's performance in comparison to similar work groups is very high.

#### ORGANIZATION CLIMATE

Below are items which describe characteristics of your organization. The term "your organization" refers to your squadron or staff agency. Indicate your agreement by choosing the phrase which best represents your opinion concerning your organization.

1 = Strongly disagree	5 = Slightly agree
2 = Moderately disagree	6 = Moderately agree
3 = Slightly disagree	7 = Strongly agree
4 = Neither agree nor disagree	

Select the corresponding number for each item and enter it on the separate response sheet.

1 = Strongly disagree  
2 = Moderately disagree  
3 = Slightly disagree  
4 = Neither agree or disagree

5 = Slightly agree  
6 = Moderately agree  
7 = Strongly agree

82. Ideas developed by my work group are readily accepted by management personnel above my supervisor.
83. My organization provides all the necessary information for me to do my job effectively.
84. My organization provides adequate information to my work group.
85. My work group is usually aware of important events and situations.
86. My complaints are aired satisfactorily.
87. My organization is very interested in the attitudes of the group members toward their jobs.
88. My organization has a very strong interest in the welfare of its people.
89. I am very proud to work for this organization.
90. I feel responsible to my organization in accomplishing its mission.
91. The information in my organization is widely shared so that those needing it have it available.
92. Personnel in my unit are recognized for outstanding performance.
93. I am usually given the opportunity to show or demonstrate my work to others.
94. There is a high spirit of teamwork among my co-workers.
95. There is outstanding cooperation between work groups of my organization.
96. My organization has clear-cut goals.
97. I feel motivated to contribute my best efforts to the mission of my organization.
98. My organization rewards individuals based on performance.
99. The goals of my organization are reasonable.
100. My organization provides accurate information to my work group.

### JOB RELATED ISSUES

The items below are used to determine how satisfied you are with specific job related issues. Indicate your degree of satisfaction or dissatisfaction with each issue by choosing the most appropriate phrase.

1 = Extremely dissatisfied	5 - Slightly satisfied
2 = Moderately dissatisfied	6 = Moderately satisfied
3 = Slightly dissatisfied	7 = Extremely satisfied
4 = Neither satisfied nor dissatisfied	

Select the corresponding number for each question and enter it on the separate response sheet.

101. Feeling of Helpfulness  
The chance to help people and improve their welfare through the performance of my job. The importance of my job performance to the welfare of others.
102. Co-Worker Relationship  
My amount of effort compared to the effort of my co-workers, the extent to which my co-workers share the load, and the spirit of teamwork which exists among my co-workers.
103. Family Attitude Toward Job  
The recognition and the pride my family has in the work I do.
104. On-the-Job Training (OJT)  
The OJT instructional methods and instructors' competence.
105. Technical Training (Other than OJT)  
The technical training I have received to perform my current job.
106. Work Schedule  
My work schedule; flexibility and regularity of my work schedule; the number of hours I work per week.
107. Job Security
108. Acquired Valuable Skills  
The chance to acquire valuable skills in my job which prepare me for future opportunities.
109. My Job as a Whole

APPENDIX C

OAP FACTORS AND VARIABLES

ORGANIZATIONAL  
ASSESSMENT  
PACKAGE

**FACTORS  
AND  
VARIABLES**

LEADERSHIP  
AND  
MANAGEMENT  
DEVELOPMENT  
CENTER

AIR UNIVERSITY  
MAXWELL AFB, ALABAMA



## GENERAL INFORMATION

The purpose of the Organizational Assessment Package (OAP) Users Guide is to provide the information necessary to understand and effectively use the OAP system. The material in this guide is intended to identify and define the OAP factors and variables. This guide is divided into sections that include:

**SECTION 1:** Definitions of OAP Factors

**SECTION 2:** OAP Demographic Items

**SECTION 3:** Work Itself

**SECTION 4:** Job Enrichment

**SECTION 5:** Work Group Process

**SECTION 6:** Work Group Output

**SECTION 7:** OAP Variables (Listed numerically) and cross-referenced

The OAP was developed for use by the Air Force Leadership and Management Development Center (LMDC), Maxwell AFB, Alabama. The objectives of the OAP are to:

1. Inform commanders, managers, supervisors, and functional staff agencies of the nature, magnitude, level, scope, and source of current and potential leadership and management strengths and problems.
2. Provide inputs to Air Force education and training programs, to increase instructional effectiveness, and to provide inputs for curriculum development.
3. Provide feedback for improving the effectiveness of the LMDC Management Consultation Teams.
4. Develop LMDC training programs for management consultants to expand their consulting capabilities in areas which would best serve needs of the Air Force and specific organizations.
5. Provide a wide, varied, and creditable data base for research in the fields of leadership and management as well as research into jobs and career fields.
6. Provide an Air Force-wide management information system for decision making.

The principle instrument of the OAP is a 109 question survey which is administered as a first step in a LMDC consultant visit to a base. In addition to the demographic items, the OAP survey contains attitudinal questions which are grouped to form 25 factors. The questions making up the factors are designed to solicit responses from individuals on a wide range of job related factors as well as factors relating to supervision, communications, and performance within the organization. The allowable responses to the survey questions range from one, indicating disagreement or dissatisfaction, to seven, indicating a high level of agreement or satisfaction.

The factors measured by the OAP are grouped into a systems model to assess three aspects of a work group: input, process, and output (adapted from McGrath's model).

Input. In LMDC's adaptation of the model, input is comprised of demographics, work itself, and job enrichment.

A. Demographics. Descriptive or background information about the respondents to the OAP survey (see section 2 for a list of demographic items).

B. Work Itself. The work itself has to do with the task properties (technologies) and environmental conditions of the job. It assesses the patterns of characteristics members bring to the group or organization, and patterns of differentiation and integration among position and roles. The following OAP factors measure the work itself:

- 806 - Job Desires (Need For Enrichment)
- 810 - Job Performance Goals
- 812 - Task Characteristics
- 813 - Task Autonomy
- 814 - Work Repetition
- 816 - Desired Repetitive Easy Tasks
- 823 - Job Related Training
- 824 - Job Influences (not a statistical factor)

C. Job Enrichment. Measures the degree to which the job itself is interesting, meaningful, challenging, and responsible. The following OAP factors measure job enrichment:

- 800 - Skill Variety
- 801 - Task Identity
- 802 - Task Significance
- 804 - Job Feedback
- 806 - Need for Enrichment Index (Job Desires)
- 807 - Job Motivation Index
- 808 - OJ Total Score
- 809 - Job Motivation Index - Additive
- 825 - Motivation Potential Score

Work Group Process. The work group process assesses the pattern of activity and interaction among the group members. The following OAP factors measures leadership and the work group process:

- 805 - Performance Barriers/Blockages (Work Support)
- 818 - Management and Supervision
- 819 - Supervisory Communications Climate
- 820 - Organizational Communications Climate
- 821 - Work Interferences (not a statistical factor)
- 822 - Supervisory Assistance (not a statistical factor)

Work Group Output. Measures task performance, group development, and effects on group members. Assesses the quantity and quality of task performance and alteration of the group's relation to the environment. Assesses changes in positions and role patterns, and in the development of norms. Assesses changes on skills and attitudes, and effects on adjustment. The following OAP factors measure the work group output:

- 811 - Pride
- 817 - Advancement/Recognition
- 821 - Work Group Effectiveness (Perceived Productivity)
- 822 - Job Related Satisfaction
- 824 - General Organizational Climate

## Section 1

### DEFINITIONS OF OAP FACTORS

#### (STATISTICAL FACTORS)

800 Skill Variety: Measures the degree to which a job requires a variety of different tasks or activities in carrying out the work, which involve the use of a number of different skills and talents of the worker. A key is that the skills required are valued by the worker.

801 Task Identity: Measures the degree to which the job requires completion of a whole and identifiable piece of work from beginning to end. Task Impact on the Lives or work of others; the importance of the job.

803 (Not Used)

804 Job Feedback: Measures the degree to which carrying out the work activities required by the job results in the worker obtaining clear and direct information about job outcomes or information on good and poor performance.

805 Performance Barriers/Blockages (Work Support): Measures the degree to which work performance is hindered by additional duties, details, inadequate tools, equipment, or work space.

806 Need for Enrichment Index (Job Desires): Refers to the job related characteristics (autonomy, personal growth, use of skills, etc.) that the individual would like in a job.

807 Job Motivation Index: A composite index derived from the job characteristics that reflects the overall "motivational aspects" of a job; the degree to which a job prompts high internal work motivation on the part of job incumbents.

808 OJI Total Score: A composite index derived from the job characteristics that reflects one's perception of motivation provided by the job itself as opposed to motivation provided by others. This factor is similar to the other job motivation factors, but it employs a slightly different theory in arriving at the results.

809 Job Motivation Index - Additive: This factor employs a variation of theory used by the other job motivation factors.

810 Job Performance Goals: Measures the degree to which job performance goals are clear, specific, realistic, understandable, and challenging.

811 Pride: Measures the pride in one's work.

812 Task Characteristics: A combination of skill variety, task identity, task significance, and job feedback designed to measure several aspects of one's job.

813 Task Autonomy: Measures the degree to which the job provides freedom to do the work as one sees fit; discretion in scheduling, decision-making, and means for accomplishing a job.

814 Work Repetition: Measures the extent to which one performs the same tasks or faces the same type of problems in his or her job on a regular basis.

816 Desired Repetitive Easy Tasks: Measures the extent to which one desires his or her job to involve repetitive tasks or tasks that are easy to accomplish.

817 Advancement/Recognition: Measures one's awareness of advancement and recognition, and feelings of being prepared (i.e., learning new skills for promotion).

818 Management and Supervision: Measures the degree to which the worker has high performance standards and good work procedures. Measures support and guidance received, and the overall quality of supervision.

819 Supervisory Communications Climate: Measures the degree to which the worker perceives that there is good report with supervisors; that there is a good working environment; that innovation for task improvement is encouraged, and that rewards are based upon performance.

820 Organizational Communications Climate: Measures the degree to which the worker perceives that there is an open communications environment in the organization, and that adequate information is provided to accomplish the job.

821 Work Group Effectiveness (Perceived Productivity): Measures one's view of the quantity, quality and efficiency of work generated by his or her work group.

822 Job Related Satisfaction: Measures the degree to which the worker is generally satisfied with factors surrounding the job.

823 Job Related Training: Measures the extent to which one is satisfied with on-the-job and technical training received.

824 General Organizational Climate: Measures the individual's perception of his or her organizational environment as a whole (i.e., spirit of team work, communications, organizational pride, etc.).

825 Motivation Potential Score: This factor employs a variation of theory used by the other job motivation factors. It ranges between 0 and 343 with 199 being the Air Force average. Low scores indicate a poorly motivating job.

#### (NON-STATISTICAL FACTORS)

Job Influences: Refers to worker's feelings of accountability to his or her supervisor, and standards of performance.

Work Interferences: Identifies things which impede an individual's job performance.

Supervisory Assistance: Measures the extent to which a supervisor helps the subordinate.

## Section 2

OAP DEMOGRAPHIC ITEMS

**Section 2 (Continued)**

**OAP DEMOGRAPHIC ITEMS**

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT	VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
010	7	Highest level of professional military education (residence or correspondence):	015	12	What is your usual work schedule?
		0. None or not applicable		1.	Day shift, normally stable hours
		1. NCO Orientation Course or USAF Supervisor Course (NCO Phase 1 or 2)		2.	Swing shift (about 1600-2000)
		2. NCO Leadership School (NCO Phase 3)		3.	Mid shift (about 2400-0800)
		3. NCO Academy (NCO Phase 4)		4.	Rotating shift schedule
		4. Senior NCO Academy (NCO Phase 5)		5.	Day or shift work with irregular/unstable hours
		5. Squadron Officer School		6.	Frequent TDY/travel or frequently on-call to report to work
		6. Intermediate Service School (i.e., ACSC, AFSC)		7.	Crew schedule
		7. Senior Service School (i.e., AMC, ICAF, NMIC)			How often does your supervisor hold group meetings?
011	8	How many people do you directly supervise?			
		1. None		1.	Never
		2. 1		2.	Occasionally
		3. 2		3.	Monthly
		4. 3		4.	Continuously
012	9	For how many people do you write performance reports?	017	14	How often are group meetings used to solve problems and establish goals?
		1. None		1.	Never
		2. 1		2.	Occasionally
		3. 2		3.	About half the time
		4. 3		4.	All of the time
013	10	Does your supervisor actually write your performance reports?	018	15	What is your aeronautical rating and current status?
		1. Yes		1.	Nonrated, not on aircrew
		2. No		2.	Nonrated, now on aircrew
		3. Not Sure		3.	Rated, in crew/operations job
				4.	Rated, in support job
014	11	Your work requires you to work primarily:	019	16	Which of the following best describes your career or employment intentions?
		1. Alone		1.	Planning to retire in the next 12 months
		2. With one or two people		2.	Will continue in/with the Air Force as a career
		3. As a small work group (3-5 people)		3.	Will most likely continue in/with the air force
		4. As a large work group (6 or more people)		4.	May continue in/with the Air Force
		5. Other		5.	Will most likely not make the Air Force a career
				6.	Will separate/terminate from the Air Force as soon as possible

### Section 3

#### WORK ITSELF

**FACTOR 806 - JOB DESIRES (NEED FOR ENRICHMENT INDEX):** Has to do with job related characteristics (autonomy, personal growth, use of skills, etc.) that the individual would like in a job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT	VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
249	51	I would like to have the characteristics described - from "not at all" to "an extremely large amount": Opportunities to have independence in my work.	201	17	To what extent does your job require you to do many different things, using a variety of your talents and skills?
250	52	A job that is meaningful.	202	18	To what extent does your job involve doing a <u>whole task or unit of work</u> ?
251	53	The opportunity for personal growth in my job.	203	19	To what extent is your job significant, in that it affects others in some important way?
252	54	Opportunities in my work to use my skills.	272	22	To what extent are you able to determine how well you are doing your job without feedback from anyone else?
253	55	Opportunities to perform a variety of tasks.	209	26	To what extent does your job provide the chance to know for yourself when you do a good job, and to be responsible for your own work?
<b>FACTOR 810 - JOB PERFORMANCE GOALS: Measures the extent to which job performance goals are clear, specific, realistic, understandable, and challenging.</b>					
VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT	VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
217	34	To what extent do you know exactly what is expected of you in performing your job?	211	28	To what extent does your job provide you with a chance to finish completely the piece of work you have begun?
218	35	To what extent are your job performance goals difficult to accomplish?	212	29	To what extent does your job require you to use a number of complex skills?
219	36	To what extent are your job performance goals clear?	214	37	To what extent are your job performance goals specific?
221	38	To what extent are your job performance goals realistic?			

Section 3 (Continued)  
WORK ITSELF

**FACTOR 813 - TASK AUTONOMY:** Measures the degree to which the job provides freedom to do the work as one sees fit; discretion in scheduling, decision making, and means for accomplishing a job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
270	20	To what extent does your job provide a great deal of freedom and independence in scheduling your work?
271	21	To what extent does your job provide a great deal of freedom and independence in selecting your own procedures to accomplish it?
213	30	To what extent does your job give you freedom to do your work as you see fit?
214	31	To what extent are you allowed to make the major decisions required to perform your job well?

**FACTOR 814 - WORK REPETITION:** Measures the extent to which one performs the same tasks or faces the same type of problems in his or her job on a regular basis.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
226	39	To what extent do you perform the same tasks repeatedly within a short period of time?
227	40	To what extent are you faced with the same type of problem on a weekly basis?

**FACTOR 816 - DESIRED REPETITIVE EASY TASKS:** Measures the extent to which one desires his or her job to involve repetitive tasks or tasks that are easy to accomplish.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
255	56	A job in which tasks are repetitive.
258	57	A job in which tasks are relatively easy to accomplish.

**FACTOR 823 - JOB RELATED TRAINING:** Measures the extent to which one is satisfied with on-the-job and technical training received.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
	711	On-the-Job Training (QJT) The QJT instructional methods and instructors' competence.
	712	Technical Training (Other than QJT) The technical training I have received to perform my current job.

**FACTOR - JOB INFLUENCES (NOT A STATISTICAL FACTOR):**

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
	216	To what extent do you feel accountable to your supervisor in accomplishing your job?
	238	To what extent do co-workers in your work group maintain high standards of performance?

Section 4  
JOB ENRICHMENT

**FACTOR 800 - SKILL VARIETY:** Measures the degree to which a job requires a variety of different tasks or activities in carrying out the work; involves the use of a number of different skills and talents of the worker; skills required are valued by the worker.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
201	17	To what extent does your job require you to do many different things, using a variety of your talents and skills?
212	29	To what extent does your job require you to use a number of complex skills?

FACTOR 801 - TASK IDENTITY: Measures the degree to which the job requires completion of a whole and identifiable piece of work from beginning to end.		
VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
202	18	To what extent does your job involve doing a whole task or unit of work?

To what extent does your job provide you with a chance to finish completely the piece of work you have begun?

44

**FACTOR 804 - JOB FEEDBACK:** Measures the degree to which carrying out the work activities required by the job results in the worker obtaining clear and direct information about job outcomes or information on good and poor performance.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
	272	To what extent are you able to determine how well you are doing your job without feedback from anyone else?
	209	To what extent does your job provide the chance to know for yourself when you do a good job, and to be responsible for your own work?

**FACTOR 806 - NEED FOR ENRICHMENT INDEX (JOB DESIRES):** Has to do with job related characteristics (autonomy, personal growth, use of skills, etc.) that the individual would like in a job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
	249	(In my job, I would like to have the characteristics described--from "not at all" to "an extremely large amount")
	249	250
	250	Opportunities to have independence in my work.
	251	A job that is meaningful.
	251	252
	252	The opportunity for personal growth in my job.
	253	253
	253	Opportunities in my work to use my skills.
	253	Opportunities to perform a variety of tasks.

FACTOR 802 - TASK SIGNIFICANCE: Measures the degree to which the job has a substantial impact on the lives of work or others; the importance of the job.		
VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
203	19	To what extent is your job significant, in that it affects others in some important way?

210	27	To what extent does doing your job well affect a lot of people?
-----	----	---

Section 4 (Continued)  
JOB ENRICHMENT

**FACTOR 807 - JOB MOTIVATION INDEX:** A composite index derived from the six job characteristics that reflects the overall "motivating potential" of a job; the degree to which a job will prompt high internal work motivation on the part of job incumbents.

800 Skill Variety  
801 Task Identity  
802 Task Significance  
804 Job Feedback  
805 Work Support  
813 Task Autonomy

Formula:  $(1800+801+802+805)/4 + 813 + 804$

**FACTOR 808 - OJI TOTAL SCORE:** Assesses one's perception of motivation provided by his or her job. This factor is a variation of theory employed by other job motivation factors. Score is computed using the variables in the following formula:

$$(Y201+Y202+Y203+Y270+Y271+Y272  
+8+Y206+Y207+Y208+Y209+Y210  
+Y211+Y212+Y213)$$

**FACTOR 809 - JOB MOTIVATION INDEX - ADDITIVE:** This factor is a variation of theory employed by other job motivation factors. Index is computed using the following factors:

800 Skill Variety  
801 Task Identity  
802 Task Significance  
804 Work Repetition  
805 Work Support  
813 Task Autonomy

Formula:  $(1800+801+802+805)/4 + 813 + 804$

**FACTOR 825 - MOTIVATION POTENTIAL SCORE:** This factor is another variation of theory employed by other job motivation factors. It ranges between 9 and 34, with 109 being the Air Force average. Low scores indicate a poorly motivating job. Score is computed using the following factors:

800 Skill Variety  
801 Task Identity  
802 Task Significance  
804 Job Feedback  
813 Task Autonomy

Formula:  $(1800+801+802)/3 + 813 + 804$

## Section 5

### WORK GROUP PROCESS

FACTOR 605 - PERFORMANCE BARRIERS/BLOCKAGES (WORK SUPPORT): Measures the degree to which work performance is hindered by additional duties, details, inadequate tools, equipment, or work space.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
206	23	To what extent do additional duties interfere with the performance of your primary job?
207	24	To what extent do you have adequate tools and equipment to accomplish your job?
208	25	To what extent is the amount of work space provided adequate?
Formula		(8-206+207+208)/3

FACTOR 618 - MANAGEMENT AND SUPERVISION: Measures the degree to which the worker has high performance standards and good work procedures. Measures support and guidance received, and the overall quality of supervision.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
404	58	My supervisor is a good planner.
405	59	My supervisor sets high performance standards.
410	60	My supervisor encourages teamwork.
411	61	My supervisor represents the group at all times.
412	62	My supervisor establishes good work procedures.
413	63	My supervisor has made his responsibilities clear to the group.
445	64	My supervisor fully explains procedures to each group member.
416	65	My supervisor performs well under pressure.

FACTOR - WORK INTERFERENCES (NOT A STATISTICAL FACTOR): Identifies things which interfere an individual's job performance.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
	277	To what extent do you have the necessary supplies to accomplish your job?
	278	To what extent do details (task not covered by primary or additional duty descriptions) interfere with the performance of your primary job?
	279	To what extent does a bottleneck in your organization seriously affect the flow of work either to or from your group?

FACTOR 819 - SUPERVISORY COMMUNICATIONS CLIMATE: Measures the degree to which the worker perceives that there is good rapport with supervisors; that there is a good working environment; that innovation for task improvement is encouraged, and that rewards are based upon performance.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
	426	My supervisor asks members for their ideas on task improvements.
	428	My supervisor explains how my job contributes to the overall mission.
	431	My supervisor helps me set specific goals.
	433	My supervisor lets me know when I am doing a good job.
	435	My supervisor always helps me improve my performance.
	436	My supervisor insures that I get job related training when needed.
	437	My job performance has improved due to feedback received from my supervisor.
	442	My supervisor frequently gives me feedback on how well I am doing my job.

Section 5 (Continued)  
WORK GROUP PROCESS

FACTOR 820 - ORGANIZATIONAL COMMUNICATIONS CLIMATE: Measures the degree to which the worker perceives that there is an open communications environment in the organization, and that adequate information is provided to accomplish the job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT	VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
300	82	Ideas developed by my work group are readily accepted by management personnel above my supervisor.	301	83	My organization provides all the necessary information for me to do my job effectively.
302	84	My organization provides adequate information to my work group.	303	85	My work group is usually aware of important events and situations.
304	86	My complaints are aired satisfactorily.	309	91	The information in my organization is widely shared so that those needing it have it available.
314	96	My organization has clear-cut goals.	317	99	The goals of my organization are reasonable.
318	100	My organization provides accurate information to my work group.			

47

10

## Section 6

### WORK GROUP OUTPUT

#### FACTOR B11 - PRIDE: Measures the pride in one's work.

215 32 To what extent are you proud of your job?

275 46 To what extent does your work give you a feeling of pride?

FACTOR B12 - WORK GROUP EFFECTIVENESS (PERCEIVED PRODUCTIVITY): Measures one's view of the quantity, quality, and efficiency of work generated by his or her work group.

VARIABLE NUMBER STATEMENT NUMBER STATEMENT

259 77 The quantity of output of your work group is very high

260 78 The quality of output of your work group is very high

261 79 When high priority work arises, such as short suspensions, crash programs, and schedule changes, the people in my work group do an outstanding job in handling these situations

264 80 Your work group always gets maximum output from available resources (e.g., personnel and material)

265 81 Your work group's performance in comparison to similar work groups is very high

FACTOR B17 - ADVANCEMENT/RECOGNITION: Measures one's awareness of advancement and recognition, and feelings of being prepared (i.e., learning new skills for promotion).

VARIABLE NUMBER STATEMENT NUMBER STATEMENT

234 41 To what extent are you aware of promotion/advancement opportunities that affect you?

239 43 To what extent do you have the opportunity to progress up your career ladder?

240 44 To what extent are you being prepared to accept increased responsibility?

241 45 To what extent do people who perform well receive recognition?

276 47 To what extent do you have the opportunity to learn skills which will improve your promotion potential?

Section 6 (Continued)  
WORK GROUP OUTPUT

FACTOR 822 - JOB RELATED SATISFACTION: Measures the degree to which the worker is generally satisfied with factors surrounding the job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT	VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
705	101	Feeling of Helpfulness The chance to help people and improve their welfare through the performance of my job. The importance of my job performance to the welfare of others.	305	87	My organization is very interested in the attitudes of the group members toward their jobs.
709	102	Co-worker Relationships My amount of effort compared to the effort of my co-workers, the extent to which my co-workers share the load, and the spirit of teamwork which exists among my co-workers.	306	88	My organization has a very strong interest in the welfare of its people.
710	103	Family Attitude Toward Job The recognition and the pride my family has in the work I do.	307	89	I am very proud to work for this organization.
717	106	Work Schedule My work schedule; flexibility and regularity of my work schedule; the number of hours I work per week.	308	90	I feel responsible to my organization in accomplishing its mission.
718	107	Job Security	310	92	Personnel in my unit are recognized for outstanding performance.
719	108	Acquired Valuable Skills The chance to acquire valuable skills in my job which prepare me for future opportunities.	311	93	I am usually given the opportunity to show or demonstrate my work to others.
723	109	My Job as a Whole	312	94	There is high spirit of teamwork among my co-workers.
			313	95	There is outstanding cooperation between work groups of my organization.
			315	97	I feel motivated to contribute my best efforts to the mission of my organization.
			316	98	My organization rewards individuals based on performance.

Section 7  
OAP VARIABLES

VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT	VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT
201	800/812	17	To what extent does your job require you to do many different things, using a variety of your talents and skills?	215	811	32	To what extent are you proud of your job?
202	801/812	18	To what extent does your job involve doing a <u>whole</u> task or unit of work?	216	(Note)	33	To what extent do you feel accountable to your supervisor in accomplishing your job?
203	802/812	19	To what extent is your job significant, in that it affects others in some important way?	217	810	34	To what extent do you know exactly what is expected of you in performing your job?
204	-	-	(Not Used)	218	810	35	To what extent are your job performance goals difficult to accomplish?
205	-	-	(Not Used)	219	-	-	(Not Used)
206	805	23	To what extent do <u>additional</u> duties interfere with the <u>performance</u> of your primary job?	220	-	-	(Not Used)
50	207	805	24	221	810	36	To what extent are your job performance goals realistic?
208	805	25	To what extent do you have adequate tools and equipment to accomplish your job?	222	-	-	(Not Used)
209	804/812	26	To what extent is the amount of work space provided adequate?	223	-	-	(Not Used)
210	802/812	27	To what extent does your job provide the chance to know for yourself when you do a good job, and to be responsible for your own work?	224	-	-	(Not Used)
211	801/812	28	To what extent does your job provide you with a chance to finish completely the piece of work you have begun?	225	-	-	(Not Used)
212	800/812	29	To what extent does your job require you to use a number of complex skills?	226	814	39	To what extent do you perform the same tasks repeatedly within a short period of time?
213	813	30	To what extent does your job give you freedom to do your work as you see fit?	227	814	40	To what extent are you faced with the same type of problem on a weekly basis?
214	813	31	To what extent are you allowed to make the major decisions required to perform your job well?	228	-	-	(Not Used)
				229	-	-	(Not Used)
				230	-	-	(Not Used)
				231	-	-	(Not Used)
				232	-	-	(Not Used)
				233	-	-	(Not Used)

Note: This variable is an element of "Job influences" (not a statistical factor).

Section 7 (Continued)  
OAP VARIABLES

VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT	VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT
234	817	41	To what extent are you aware of promotion/advancement opportunities that affect you? (Not Used)	251	806	53	The opportunity for personal growth in my job
235	-	-	(Not Used)	252	806	54	Opportunities in my work to use my skills
236	-	-	(Not Used)	253	806	55	Opportunities to perform a variety of tasks
237	-	-	(Not Used)	254	-	-	(Not Used)
238	(Note)	42	To what extent do co-workers in your work group maintain high standards of performance?	255	816	56	A job in which tasks are repetitive. (Not Used)
239	817	43	To what extent do you have the opportunity to progress up your career ladder?	256	-	-	(Not Used)
240	817	44	To what extent are you being prepared to accept increased responsibility?	257	-	-	(Not Used)
241	817	45	To what extent do people who perform well receive recognition?	258	816	57	A job in which tasks are relatively easy to accomplish.
242	-	-	(Not Used)	259	821	77	The quantity of output of your work group is very high
243	-	-	(Not Used)	260	821	78	The quality of output of your work group is very high
244	-	-	(Not Used)	261	821	79	When high priority work arises, such as short suspensions, crash programs, and schedule changes, the people in my work group do an outstanding job in handling these situations
245	-	-	(Not Used)	262	-	-	(Not Used)
246	-	-	(Not Used)	263	-	-	(Not Used)
247	-	-	(Not Used)	264	821	80	Your work group always gets maximum output from available resources (e.g., personnel and material)
248	-	-	(Not Used)	265	821	81	Your work group's performance in comparison to similar work groups is very high
249	806	51	Opportunities to have independence in my work?	266	-	-	(Not Used)
250	806	52	A job that is meaningful	267	-	-	(Not Used)

(In my job, I would like to have the characteristics described-- from "not at all" to "an extremely large amount")  
 249 806 51 Opportunities to have independence in my work?  
 250 806 52 A job that is meaningful  
 Note: This variable is an element of "job influences" (not a statistical factor).

Section 7 (Continued)

OAP VARIABLES

VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT	VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT
268	-	-	(Not Used)	300	820	82	Ideas developed by my work group are readily accepted by management personnel above my supervisor.
269	-	-	(Not Used)	301	820	83	My organization provides all the necessary information for me to do my job effectively.
270	813	20	To what extent does your job provide a great deal of freedom and independence in scheduling your work?	302	820	84	My organization provides adequate information to my work group.
271	813	21	To what extent does your job provide a great deal of freedom and independence in selecting your own procedures to accomplish it?	303	820	85	My work group is usually aware of important events and situations.
272	804/812	22	To what extent are you able to determine how well you are doing your job without feedback from anyone else?	304	820	86	My complaints are aired satisfactorily.
273	810	36	To what extent are your job performance goals clear?	305	824	87	My organization is very interested in the attitudes of the group members toward their jobs.
274	810	37	To what extent are your job performance goals specific?	306	824	88	My organization has a very strong interest in the welfare of its people.
275	811	46	To what extent does your work give you a feeling of pride?	307	824	89	I am very proud to work for this organization.
276	817	47	To what extent do you have the opportunity to learn skills which will improve your promotion potential?	308	824	90	I feel responsible to my organization in accomplishing its mission.
277	(Note)	48	To what extent do you have the necessary supplies to accomplish your job?	309	820	91	The information in my organization is widely shared so that those needing it have it available.
278	(Note)	49	To what extent do details (task not covered by primary or additional duty descriptions) interfere with the performance of your primary job?	310	824	92	Personnel in my unit are recognized for outstanding performance.
279	(Note)	50	To what extent does a bottleneck in your organization seriously affect the flow of work either to or from your group?	311	824	93	I am usually given the opportunity to show or demonstrate my work to others.
280 thru 299	-	-	(Not Used)	312	824	94	There is a high spirit of teamwork among my co-workers.
				313	824	95	There is outstanding cooperation between work groups of my organization.

Note: These variables are elements of "work interferences" (not a statistical factor).

Section 7 (Continued)  
OAP VARIABLES

VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT	FACTOR	STATEMENT NUMBER	STATEMENT
314	820	96	My organization has clear-cut goals.	413	818	63
315	824	97	I feel motivated to contribute my best efforts to the mission of my organization.	414	-	-
316	824	98	My organization rewards individuals based on performance.	415	-	-
317	820	99	The goals of my organization are reasonable.	416	818	65
318	820	100	My organization provides accurate information to my work group.	417	-	-
319 thru 399	-	-	(Not Used)	418	-	(Not Used)
400	-	-	(Not Used)	419	-	(Not Used)
401	-	-	(Not Used)	420	-	(Not Used)
402	-	-	(Not Used)	421	-	(Not Used)
403	-	-	(Not Used)	422	-	(Not Used)
404	818	58	My supervisor is a good planner.	423	-	(Not Used)
405	818	59	My supervisor sets high performance standards.	424	(Note)	66
406	-	-	(Not Used)	425	-	-
407	-	-	(Not Used)	426	819	67
408	-	-	(Not Used)	427	-	(Not Used)
409	-	-	(Not Used)	428	819	68
410	818	60	My supervisor encourages teamwork.	429	-	-
411	818	61	My supervisor represents the group at all times.	430	-	(Not Used)
412	818	62	My supervisor establishes good work procedures.	431	819	69
				432	-	(Not Used)

Note: This variable is an element of "supervisory assistance" (not a statistical factor).

Section 7 (Continued)  
OAP VARIABLES

VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT	VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT
433	819	70	My supervisor lets me know when I am doing a good job.	707	-	-	(Not Used)
434	(Note)	71	My supervisor lets me know when I am doing a poor job.	708	-	-	(Not Used)
435	819	72	My supervisor always helps me improve my performance.	709	822	102	<u>Co-worker Relationships</u> The amount of effort compared to the effort of my co-workers, the extent to which my co-workers share the load, and the spirit of teamwork which exists among my co-workers.
436	819	73	My supervisor insures that I get job related training when needed.	710	822	103	<u>Family Attitude toward Job</u> The recognition and the pride my family has in the work I do.
437	819	74	My job performance has improved due to feedback received from my supervisor.	711	823	104	<u>On-the-Job Training (OJT)</u> The OJT instructional methods and instructors' competence.
438	-	-	(Not Used)	712	823	105	<u>Technical Training (Other than OJT)</u> The technical training I have received to perform my current job.
439	(Note)	75	When I need technical advice, I usually go to my supervisor.	713	-	-	(Not Used)
440	-	-	(Not Used)	714	-	-	(Not Used)
441	-	-	(Not Used)	715	-	-	(Not Used)
442	819	76	My supervisor frequently gives me feedback on how well I am doing my job.	716	-	-	(Not Used)
443	-	-	(Not Used)	717	822	106	<u>Work Schedule</u> My work schedule; flexibility and regularity of my work schedule; the number of hours I work per week.
444	-	-	(Not Used)	718	822	107	<u>Job Security</u>
445	818	64	My supervisor fully explains procedures to each group member.	719	822	108	<u>Acquired Valuable Skills</u> The chance to acquire valuable skills in my job which prepare me for future opportunities.
446 thru 699	-	-	(Not Used)	720	-	-	(Not Used)
700	-	-	(Not Used)	721	-	-	(Not Used)
701	-	-	(Not Used)	722	-	-	(Not Used)
702	-	-	(Not Used)	723	822	109	<u>My Job as a Whole</u>
703	-	-	(Not Used)	724 thru 999	-	-	(Not Used)

Note: These variables are elements of "supervisory assistance" (not a statistical factor).

APPENDIX D

REVISED OAP FACTOR STRUCTURE AND  
CORRESPONDING ITEMS ACROSS ALL  
FUNCTIONAL AREA AND DEMOGRAPHIC  
GROUPS

Table 1  
Supervision - Factor Loading by Sample

V	A	R	I	Total	Wing/ Group	Resources	Maintenance	Opera- tions	Medical	Missile	Communi- cations	Unique
A	B	L	E	n = 44728	Base	4827	8295	2117	2426	961	988	8261
V404	.78017	.791	.784	.779	.751	.787	.768	.758	.768	.758	.781	
V405	.69564	.700	.700	.687	.685	.726	.708	.658	.708	.658	.705	
V410	.75274	.769	.754	.745	.743	.768	.731	.737	.747	.731	.746	
V411	.76523	.775	.765	.771	.737	.771	.756	.780	.780	.756	.766	
V412	.82057	.831	.825	.814	.805	.806	.829	.834	.829	.834	.817	
V413	.76411	.775	.769	.754	.740	.747	.775	.784	.775	.775	.763	
V416	.77464	.782	.786	.775	.757	.764	.791	.786	.764	.791	.779	
V424	.78796	.801	.788	.779	.774	.782	.779	.783	.779	.783	.791	
V426	.74421	.755	.757	.741	.723	.739	.739	.740	.739	.739	.750	
V428	.75145	.762	.756	.730	.741	.741	.735	.746	.735	.735	.759	
V431	.78784	.795	.786	.771	.766	.799	.788	.799	.788	.799	.786	
V433	.75659	.766	.749	.743	.751	.763	.762	.779	.762	.762	.750	
V434	.45201	.469	.447	.367	.507	.445	.428	.506	.445	.428	.484	
V435	.83054	.843	.833	.812	.827	.822	.839	.840	.827	.839	.822	
V436	.71745	.747	.728	.692	.721	.712	.768	.733	.721	.768	.733	
V437	.77723	.779	.780	.757	.770	.780	.811	.781	.770	.780	.781	
V439	.70060	.722	.715	.684	.670	.714	.670	.672	.670	.670	.697	
V442	.75311	.755	.746	.730	.761	.764	.773	.756	.761	.773	.758	
V445	.80228	.809	.811	.800	.767	.790	.818	.800	.767	.790	.797	
V216	.36804	.360	(.364)	.362	.316	.415	.367	(.304)	.316	.415	.391	
V711	(.34034)	(.348)	(.366)	(.316)	(.326)	(.316)	(.326)	(.326)	(.316)	(.326)	(.328)	

Table 1 (Cont'd)

	A B L E	A R I A B L E	Male 37633	Female 6856	Officer 5345	Enlisted 30508	Civilian 8257	White 34333	Black 4863	Hispanic 2128	Other 3138
V404	.779	.791	.760	.786	.780	.782	.774	.776	.780	.780	.780
V405	.695	.704	.668	.697	.716	.693	.692	.724	.724	.707	.707
V410	.753	.756	.732	.758	.746	.751	.760	.777	.777	.747	.747
V411	.764	.775	.725	.772	.764	.764	.751	.784	.784	.784	.784
V412	.821	.824	.792	.827	.816	.820	.815	.833	.833	.825	.825
V413	.763	.771	.753	.764	.768	.764	.757	.786	.786	.768	.768
V416	.777	.769	.756	.785	.772	.773	.779	.781	.781	.787	.787
V424	.788	.794	.781	.788	.798	.786	.788	.804	.804	.798	.798
V426	.743	.751	.727	.746	.758	.742	.731	.766	.766	.771	.771
V428	.751	.755	.722	.750	.767	.747	.759	.779	.779	.774	.774
V431	.786	.795	.743	.790	.794	.786	.786	.797	.797	.804	.804
V433	.758	.747	.720	.760	.752	.755	.755	.760	.760	.772	.772
V434	.449	.457	.445	.432	.509	.446	.455	.516	.516	.436	.436
V435	.831	.826	.799	.833	.822	.832	.816	.833	.833	.836	.836
V436	.720	.702	.663	.732	.677	.711	.731	.749	.749	.737	.737
V437	.777	.780	.759	.778	.767	.781	.748	.793	.793	.776	.776
V439	.694	.741	.622	.712	.706	.697	.697	.737	.737	.727	.727
V442	.755	.740	.733	.750	.750	.753	.733	.766	.766	.767	.767
V445	.802	.805	.774	.806	.799	.802	.798	.822	.822	.806	.806
V216	.363	.400	(.323)	.369	.395	.367	.361	.347	.347	(.398)	(.398)
V711	.334	.377	(.277)	(.331)	(.384)	(.344)	(.327)	(.326)	(.327)	(.337)	(.337)

Table 2  
Organizational Climate - Factor Loading by Sample

V	A	R	I	Total Data B L E n = 44728	Wing/ Group Base	Resources	Maintenance	Opera- tions	Medical	Missile	Communi- cations	Unique
V300	.61924	.626	.614	.604	.615	.619	.584	.573	.624			
V301	.70623	.724	.696	.693	.655	.720	.727	.684	.713			
V302	.75476	.755	.746	.750	.721	.775	.779	.759	.769			
V303	.69232	.695	.691	.694	.657	.681	.708	.715	.691			
V304	.66838	.678	.671	.660	.656	.680	.640	.654	.670			
V305	.75204	.747	.656	.739	.730	.759	.737	.766	.764			
V306	.76560	.762	.768	.752	.749	.786	.744	.780	.778			
V307	.65923	.650	.691	.632	.646	.687	.648	.727	.671			
V308	.47813	.493	.514	.438	.462	.500	.501	.514	.471			
V309	.76025	.759	.766	.756	.741	.760	.743	.785	.769			
V310	.67601	.678	.687	.653	.718	.654	.652	.711	.690			
V311	.53229	.541	.550	.493	.567	.511	.506	.568	.546			
V313	.63885	.645	.660	.595	.628	.642	.605	.656	.649			
V314	.65700	.680	.671	.637	.616	.626	.570	.673	.655			
V315	.55333	.570	.596	.527	.541	.557	(.494)	.582	.540			
V316	.69576	.703	.720	.670	.713	.668	.695	.710	.701			
V317	.64107	.655	.672	.628	.589	.640	.585	.637	.634			
V318	.77490	.777	.772	.769	.758	.773	.766	.785	.789			
V711	.35698	.383	.403	(.312)	(.335)	(.339)	(.308)	(.377)	(.345)			
V241	(.42689)	(.430)	.447	(.386)	(.454)	(.364)	.456	.412	.455			
V312	(.44215)	(.440)	.494	(.380)	.535	(.458)	(.434)	.459	(.448)			
V712	(.31183)	(.352)	(.343)	(.285)	(.297)	(.301)	(.246)	(.267)	(.276)			

Table 2 (Cont'd)

V	A	R	I	A	B	L	E	Male	Female	Officer	Enlisted	Civilian	White	Black	Hispanic	Other	
										5345	30508	8257	34333	4863	2128	3138	
V300	.622		.613		.606			.613		.625		.624		.553		.605	.658
V301	.708		.711		.689			.707		.703		.707		.694		.718	.707
V302	.756		.764		.737			.754		.743		.760		.724		.759	.740
V303	.691		.709		.684			.686		.697		.696		.662		.683	.701
V304	.671		.649		.667			.667		.653		.670		.643		.670	.687
V305	.753		.743		.737			.753		.744		.751		.747		.754	.763
V306	.765		.763		.737			.770		.751		.764		.766		.769	.776
V307	.663		.636		.611			.673		.613		.655		.687		.665	.681
V308	.488		(.414)		.428			.501		.378		.474		.512		.481	.491
V309	.759		.766		.751			.763		.740		.764		.738		.757	.764
V310	.678		.637		.678			.680		.656		.674		.666		.677	.704
V311	.538		.483		.551			.516		.545		.534		.512		.554	.533
V313	.636		.639		.632			.631		.649		.636		.646		.643	.656
V314	.654		.667		.601			.658		.663		.651		.674		.694	.675
V315	.560		(.503)		.497			.569		.495		.546		.596		.582	.557
V316	.697		.664		.690			.697		.679		.692		.691		.720	.720
V317	.640		.641		.585			.650		.626		.636		.658		.648	.675
V318	.775		.781		.764			.775		.762		.779		.754		.772	.772
V711	(.360)		(.337)		.380			.343		.415		.353		.361		.370	.395
V241	(.427)		.401		.455			.415		.443		(.427)		.399		.436	(.444)
V312	(.441)		(.429)		.523			.414		.479		(.436)		.458		.488	.457
V712	(.316)		(.292)		.329			.292		.373		(.304)		.313		.379	(.355)

Table 3  
Work Group Effectiveness - Factor Loading by Sample

Y	A	R	1	Total	Wing/ Group	Resources	Maintenance	Opera- tions	Medical	Missile	Communi- cations	Unique
	A											
	B											
	L											
	E	n = 44728		12758	4827	8295		2117	2426	961	988	8261
Y238	.55508		.547	.530		.552		.535	.567	.549	.424	.567
Y259	.66257		.696	.676		.661		.591	.612	.557	.662	.642
Y260	.75659		.774	.774		.744		.716	.747	.754	.762	.736
Y261	.73389		.727	.737		.723		.755	.696	.760	.767	.749
Y264	.67856		.667	.669		.654		.707	.686	.632	.697	.707
Y265	.74094		.742	.756		.729		.737	.730	.735	.741	.737
Y312	.49240		.492	(.450)		.526		(.436)	.478	.494	(.459)	.501
Y709	.53934		.531	.527		.545		.476	.560	.457	.471	.557

Table 3 (Cont'd)

Y	A	R	I	A	B	L	E	Male	Female	Officer						
								37633	6856	5345						
										Enlisted						
										30508						
										Civilian						
										8257						
										White						
										34333						
										Black						
										4863						
										Hispanic						
										2128						
										Other						
										3138						
V238								.549	.583	.567	.552	.572	.479	.489	.530	
V259								.660	.690	.625	.649	.722	.654	.696	.704	.661
V260								.753	.780	.753	.747	.795	.756	.765	.766	.742
V261								.730	.751	.774	.724	.760	.737	.717	.737	.730
V264								.683	.662	.740	.662	.707	.683	.660	.686	.654
V265								.738	.754	.763	.732	.766	.745	.720	.735	.740
V312								.493	.483	.480	.499	(.478)	.505	(.424)	(.447)	.481
V709								.536	.551	.540	.541	.541	.553	.487	.477	.508

Table 4  
Task Characteristics - Factor Loading by Sample

Y	A	R	I	A	B	Wing/ Group	Resources	Maintenance	Opera- tions	Medical	Missile	Communi- cations	Unique
	Total	Data											
		Base											
V201	.68233	.669		.638		.653		(.390)		.661	.629	.709	.711
V202	.66402	.642		.627		.643		.506		.661	.647	.667	.671
V203	.71318	.733		.714		.680		.695		.711	.717	(.320)	.708
V209	.44652	(.407)		.392		.458		(.345)		.398	.417	(.254)	.479
V210	.65226	.684		.663		.617		.714		.595	.701	(.236)	.660
V211	.40121	.389		.341		.404		(.370)		.429	.441	(.208)	.386
V212	.66876	.647		.612		.655		(.276)		.684	.589	.658	.700
V215	(.438882)	(.396)		(.392)		(.413)		(.241)		(.357)	(.420)	(.198)	.535
V218	(.29771)	(.274)		(.294)		(.253)		(.086)		(.250)	(.077)	(.394)	.355
V275	(.41124)	(.376)		(.348)		(.381)		(.237)		(.146)	(.345)	(.140)	.520

Table 4 (Cont'd)

	A	R	I	A	B	L	Male	Female	Officer	Enlisted	Civilian	White	Black	Hispanic	Other
						E	37633	6856	5345	30508	8257	34333	4863	2128	3138
V201	.687	.644	.734	.691	.677							.679	.693	.674	.691
V202	.668	.645	.625	.673	.654							.655	.692	.695	.687
V203	.705	.759	.693	.691	.733							.712	.703	.727	.712
V209	.460	.404	.455	.452	(.384)							.441	.463	.414	.442
V210	.649	.700	.610	.636	.642							.651	.641	.687	.661
V211	.418	.335	.425	.399	.323							.404	.371	.393	.381
V212	.670	.648	.774	.672	.685							.669	.655	.663	.688
V215	(.448)	(.413)	.534	(.426)	(.402)							(.449)	(.396)	(.411)	(.406)
V218	(.296)	(.267)	(.311)	(.316)	(.283)							(.305)	(.262)	(.298)	(.281)
V275	(.420)	(.396)	.502	(.399)	(.376)							(.418)	(.399)	(.386)	(.371)

Table 5  
Pride & Satisfaction - Factor Loading by Sample

V	A	R	I	Total Data Base L E n = 44728	Wing/ Group	Resources	Maintenance	Opera- tions	Medical	Missile	Communi- cations	Unique
V215	.52967	.544	.539	.464	.679	.607	.557	.527	.527	.557	.527	(.437)
V275	.50868	.511	.529	.447	.636	.597	.546	.531	.546	.531	.531	(.460)
V705	.46812	.451	.458	.436	.487	.498	.478	.494	.478	.494	.494	.446
V710	.59168	.594	.583	.571	.550	.592	.576	.527	.576	.527	.527	.597
V712	.40328	.393	(.306)	.552	(.318)	(.296)	(.244)	(.296)	(.244)	.579	.579	.440
V717	.42520	.444	.467	.449	(.175)	(.283)	(.290)	(.283)	(.290)	(.254)	(.254)	.407
V718	.50832	.507	.548	.539	(.252)	.431	.478	.478	.478	.475	.475	.527
V719	.50415	.516	.465	.538	.457	.496	.321	.321	.321	.557	.557	.495
V723	.62616	.632	.618	.588	.562	.687	.606	.606	.606	.646	.646	.605
V711	(.33921)	(.340)	(.248)	.460	(.247)	(.263)	(.239)	(.263)	(.239)	.407	.407	.362
V308	(.38709)	(.404)	(.411)	(.307)	.502	(.436)	(.475)	(.436)	(.475)	(.262)	(.262)	(.316)
V315	(.41533)	(.412)	(.416)	(.342)	(.522)	(.484)	(.338)	(.522)	(.484)	.528	.528	(.385)

Table 5 (Cont'd)

Table 6  
Need for Enrichment - Factor Loading by Sample

Y	A	R	I	A	Total Data	Wing/ Group	Resources	Maintenance	Opera- tions	Medical	Missile	Communi- cations	Unique
	B												
L		Base											
E		n = 44728											
V249	.70126	.715	.717	.695	.688	.709	.675	.677	.660				
V250	.85123	.849	.852	.855	.839	.849	.817	.850	.845				
V251	.86769	.869	.865	.871	.864	.863	.857	.863	.866				
V252	.87911	.879	.879	.876	.853	.878	.878	.856	.882				
V253	.77989	.796	.785	.773	.727	.768	.770	.754	.764				

Table 6 (Cont'd)

	Y	A	R	I	A	B	L	Male 37633	Female 6856	Officer 5345	Enlisted 30508	Civilian 8257	White 34333	Black 4863	Hispanic 2128	Other 3138	
V249		.704		.678		.616		.700		.711		.701		.667		.708	.727
V250		.850		.858		.841		.852		.849		.851		.848		.846	.851
V251		.866		.875		.866		.873		.844		.868		.865		.855	.876
V252		.878		.888		.864		.878		.884		.879		.877		.874	.875
V253		.779		.767		.700		.781		.786		.778		.764		.813	.779

Table 7  
Task Autonomy - Factor Loading by Sample

Y	A	R	Total	Wing/ Group	Resources	Maintenance	Opera- tions	Medical	Missile	Communi- cations	Unique
V213	.76466	.741	.776	.798	.771	.717	.814	.713	.779		
V214	.61629	.617	.629	.607	.614	.620	.562	.438	.666		
V270	.73423	.720	.698	.709	.698	.725	.685	.732	.762		
V271	.79860	.780	.807	.810	.792	.792	.826	.805	.780		
V272	.42343	.519	.451	.348	(.376)	.400	(.341)	(.275)	.393		
V209	(.355533)	.428	(.387)	(.251)	(.356)	(.342)	(.309)	(.255)	(.353)		

Table 7 (Cont'd)

	A	R	I	A	B								
	Male	Female			Officer	Enlisted	Civilian			White	Black	Hispanic	Other
	37633	6856			5345	30508	8257			34333	4863	2128	3138
V213	.763	.772			.768	.765	.781			.767	.752	.763	.756
V214	.611	.651			.586	.605	.672			.621	.596	.605	.617
V270	.732	.749			.740	.728	.735			.734	.724	.717	.738
V271	.796	.816			.798	.800	.814			.798	.795	.805	.790
V272	.415	.451			(.315)	.418	.459			.422	.408	.439	.481
V209	(.341)	(.403)			(.339)	(.338)	.438			(.360)	(.335)	(.362)	(.366)

Table 8  
Goals - Factor Loading by Sample

Y	A	R	I	A	Total	Wing/ Group	Resources	Maintenance	Opera- tions	Medical	Missile	Communi- cations	Unique
					Data Base	Group							
					n = 44728	12758	4827	8295	2117	2426	961	988	8261
V217				.64837	.640	.642	.614	.648	.634	.691	.695	.625	
V221				.61002	.568	.644	.620	.545	.630	.639	.687	.606	
V273				.78469	.760	.799	.786	.768	.797	.815	.795	.773	
V274				.78970	.770	.804	.782	.766	.797	.809	.796	.771	
V272				(.28414)	(.251)	(.267)	(.317)	(.415	(.312)	(.404	(.282)	(.238)	
V209				(.29479)	(.269)	(.284)	(.332)	(.312	(.344)	(.347)	(.329)	(.244)	
V211				(.24404)	(.201)	(.260)	(.260)	(.382	(.284)	(.255)	.394	(.263)	

Table 8 (Cont'd)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female									
V217	.646	.654	.629	.636	.659	.651	.643	.603	.627																				
V221	.603	.648	.596	.592	.662	.613	.606	.621	.583																				
V273	.780	.809	.775	.779	.784	.790	.762	.758	.763																				
V274	.787	.804	.785	.781	.777	.794	.768	.771	.767																				
V272	(.280)	(.293)	.380	(.267)	(.287)	(.291)	(.262)	(.275)	(.264)																				
V209	(.289)	(.313)	(.339)	(.289)	(.290)	(.305)	(.274)	(.290)	(.266)																				
V211	(.245)	(.229)	(.301)	(.267)	(.225)	(.251)	(.266)	(.133)	(.238)																				

Table 9  
Advancement/Recognition - Factor Loading by Sample

	A	R	I	A	Wing/ Group	Resources	Maintenance	Opera- tions	Medical	Missile	Communi- cations	Unique
	Total Data	Base	Base	n = 44728	12758	4827	8295	2117	2426	961	988	8261
V234	.61514	.628	.632				.662	.476	.602	.511	.565	.634
V239	.74110	.750	.772				.726	.697	.693	.673	.769	.752
V240	.56232	.562	.576				.563	.609	.581	.560	.578	.533
V241	.45796	.468	(.437)				.418	.471	.440	(.414)	(.395)	(.435)
V276	.60003	.613	.634				.551	.592	.625	.543	.628	.597
V712	(.21625)	(.214)	(.246)				(.152)	(.125)	.336	(.198)	(.108)	(.248)
V718	(.11210)	(.128)	(.102)				(.108)	(.303)	(.206)	(.029)	(.102)	(.124)
V719	(.29402)	(.288)	(.332)				(.244)	(.361)	(.312)	(.256)	(.269)	(.328)

Table 9 (Cont'd)

V	A	R	I	A	B	L	Male	Female	Officer	Enlisted	Civilian	White	Black	Hispanic	Other
						E	37633	6856	5345	30508	8257	34333	4863	2128	3138
V234							.605	.626	.488	.589	.540	.608	.619	.662	.613
V239							.731	.792	.730	.663	.723	.746	.679	.733	.731
V240							.562	.594	.628	.487	.598	.572	.520	.514	.533
V241							.461	(.366)	(.412)	.468	.457	.451	.460	.494	.467
V276							.581	.687	.652	.527	.697	.603	.537	.598	.621
V719							(.268)	(.417)	.414	(.202)	.502	(.300)	(.242)	(.270)	(.312)
V718							(.115)	(.159)	.367	(.080)	(.177)	(.120)	(.083)	(.071)	(.123)
V712							(.190)	(.254)	(.139)	(.183)	(.065)	(.208)	(.245)	(.205)	(.219)

Table 10  
Work Support - Factor Loading by Sample

	A	R	I	Total Data Base	Wing/ Group	Resources	Maintenance	Opera- tions	Medical	Missile	Communi- cations	Unique
				E n = 44728	12758	4827	8295	2117	2426	961	988	8261
V207	.79611	.795	.793		.776		.784		.817	.793	.828	.708
V208	.63972	.637	.646		.625		.680		.714	.503	.530	.624
V277	.76205	.768	.750		.744		.772		.793	.741	.746	.772

Table 10 (Cont'd)

	Male 37633	Female 6056	Officer 5345	Enlisted 30508	Civilian 8257	White 34333	Black 4863	Hispanic 2128	Other 3138
V207	.794	.813	.735	.800	.777	.800	.777	.756	.790
V208	.633	.694	.685	.627	.651	.639	.616	.658	.639
V277	.760	.782	.802	.759	.761	.771	.721	.733	.738

Table 11  
Work Interference - Factor Loading by Sample

V	A	R	I	Total	Wing/ Group	Resources	Maintenance	Opera- tions	Medical	Missile	Communi- cations	Unique
E	n =	44728	12758	4827	8295	2117	2426	961	988	8261		
V206	.80231	.788	.797	.802	.772	.776	.737	.696	.696	.808		
V218	.34275	.413	(.366)	.313	(.135)	.432	(.133)	.407	.407	(.261)		
V278	.81962	.801	.827	.826	.776	.789	.815	.822	.822	.823		
V279	.43561	.486	.436	.380	.481	.438	.463	.476	.476	.434		

Table 11 (Cont'd)

	Male	Female	Officer	Enlisted	Civilian	White	Black	Hispanic	Other
	37633	6856	5345	30508	8257	34333	4863	2128	3138
V206	.802	.804	.835	.796	.794	.806	.778	.811	.779
V218	.341	(.351)	(.219)	.340	.383	.348	(.328)	(.287)	(.30C)
V278	.821	.807	.829	.821	.815	.821	.814	.817	.803
V279	.427	.459	(.329)	.444	.448	.422	.494	.449	.440

Table 12  
Work Repetition - Factor Loading by Sample

V	A	R	I	Total Data Base E n = 44728	Wing/ Group B L E	Resources A	Maintenance Operations C	Medical D	Missile E	Communi- cations F	Unique G
V226	.77661	.798	.766	.796	.731	.767	.807	.787	.740		
V227	.77063	.803	.743	.792	.767	.700	.852	.834	.737		

Table 12 (Cont'd)

V	A	R	I	A	B	L	Male 37633	Female 6856	Officer 5345	Enlisted 30508	Civilian 8257	White 34333	Black 4863	Hispanic 2128	Other 3138
V226	.776	.793							.808	.798	.755	.772	.794	.807	.773
V227	.779	.777							.827	.787	.769	.767	.794	.761	.756

Table 13  
Desired Repetitive Easy Tasks - Factor Loading by Sample

Y	A	R	I	Total	Wing/ Group	Resources	Maintenance	Opera- tions	Medical	Missile	Communi- cations	Unique
	A	B										
	B											
	L											
E	n = 44728		12758	4827		8295		2117	2426	961	988	8261
V255	.81127	.837		.809		.812		.683	.781	.724	.782	.773
V258	.82346	.831		.808		.830		.712	.800	.795	.826	.803

Table 13 (Cont'd)

V	A	R	I	A	B	L	E	Male	Female	Officer	Enlisted	Civilian	White	Black	Hispanic	Other
Y255								.807	.844	.779	.812	.822	.803	.825	.830	.811
Y258								.824	.836	.818	.825	.824	.820	.811	.830	.818

## APPENDIX E

### RESULTS OF FACTOR COMPARISON STUDIES

NOTE: For names of factors associated with Factor numbers, refer to Table 4, page 13 in text.

TABLE 1

COMPARISON OF FACTOR STRUCTURES FOR  
 WING/GROUP  
 USING COEFFICIENTS OF CONGRUENCE

## FACTORS FOR DATABASE EXCEPT WING/GROUP

WING/GROUP	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.60	.50	.31	.46	.12	.32	.40	.45	.28	-.16	-.11	.05
2	.60	.99	.55	.40	.65	.16	.44	.44	.49	.41	-.26	-.20	.03
3	.50	.55	.99	.43	.49	.22	.34	.40	.36	.29	-.11	-.10	.00
4	.33	.41	.43	.99	.56	.35	.47	.47	.42	.25	.04	-.11	-.02
5	.36	.47	.37	.56	.50	.30	.97	.43	.37	.34	-.16	-.21	-.04
6	.45	.63	.49	.56	.99	.24	.46	.44	.48	.30	-.16	-.24	.01
7	.14	.17	.23	.36	.25	.99	.29	.24	.21	.17	.01	-.02	-.25
8	.40	.44	.39	.49	.45	.24	.34	.99	.38	.38	-.16	.06	.06
9	.45	.49	.37	.43	.49	.20	.36	.39	.99	.27	-.06	-.10	.01
10	.30	.41	.30	.25	.32	.17	.30	.39	.29	.99	-.24	-.02	.03
11	-.16	-.27	-.11	.10	-.18	.04	-.13	-.19	-.03	-.24	.98	.11	.03
12	-.13	-.22	-.11	-.14	-.24	-.02	-.26	.06	-.11	-.03	.10	.97	.17
13	.06	.05	.02	.01	.04	-.27	-.01	.06	.06	.00	.03	.15	.97
14	-.02	-.01	.02	.14	-.02	.11	.10	-.07	-.02	-.10	.08	-.08	-.09

TABLE 2

COMPARISON OF FACTOR STRUCTURES FOR  
 WING/GROUP  
 USING S-INDICES

## FACTORS FOR DATABASE EXCEPT WING/GROUP

WING/GROUP	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.97	.95	.75	.47	.66	.11	.42	.54	.62	.37	-.07	-.04	-.03
2	.92	.97	.75	.51	.69	.16	.50	.52	.60	.35	-.13	-.12	-.04
3	.81	.81	.87	.57	.60	.19	.46	.65	.52	.38	-.06	-.03	.00
4	.51	.52	.56	.95	.49	.40	.45	.51	.45	.17	.08	-.14	-.04
5	.61	.64	.52	.52	.57	.23	.78	.42	.59	.28	-.10	-.18	-.08
6	.68	.68	.53	.53	.90	.23	.55	.42	.72	.25	-.04	-.19	-.04
7	.21	.22	.22	.57	.29	.81	.45	.32	.28	.20	.06	-.24	-.29
8	.50	.51	.52	.52	.42	.22	.32	.85	.36	.48	-.14	.08	.05
9	.60	.57	.45	.44	.67	.12	.44	.43	.91	.23	-.04	-.15	-.05
10	.36	.35	.30	.22	.19	.06	.29	.42	.30	.78	-.28	.00	.00
11	-.07	-.16	.00	.12	-.07	.15	-.10	-.13	.04	-.27	.96	.00	.00
12	-.09	-.12	-.09	-.18	-.22	-.36	-.37	.08	-.22	.00	.07	.92	.17
13	-.03	-.02	.00	-.05	.00	-.38	-.05	.00	-.05	.00	.00	.08	.83
14	.02	.04	.08	.17	.00	.22	.15	-.04	.00	-.20	.06	-.10	.00

TABLE 3

COMPARISON OF FACTOR STRUCTURES FOR  
 WING/GROUP  
 USING ROOT MEAN SQUARE

## FACTORS FOR DATABASE EXCEPT WING/GROUP

WING/GROUP	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.01	.33	.33	.38	.34	.41	.37	.35	.34	.37	.43	.42	.40
2	.33	.03	.30	.33	.27	.38	.32	.32	.31	.32	.41	.41	.37
3	.33	.29	.02	.23	.21	.26	.24	.22	.23	.23	.28	.27	.26
4	.37	.32	.23	.03	.19	.24	.21	.21	.21	.23	.25	.27	.25
5	.36	.31	.24	.20	.20	.24	.05	.21	.21	.21	.27	.27	.25
6	.34	.27	.21	.20	.02	.25	.21	.21	.19	.22	.27	.27	.24
7	.40	.37	.26	.23	.25	.02	.24	.24	.24	.23	.25	.25	.26
8	.35	.31	.22	.20	.20	.23	.21	.03	.19	.18	.24	.22	.21
9	.34	.30	.22	.21	.19	.24	.21	.20	.02	.20	.23	.23	.21
10	.36	.31	.22	.23	.21	.23	.20	.19	.19	.02	.23	.21	.19
11	.42	.41	.27	.25	.27	.24	.25	.25	.23	.23	.02	.19	.19
12	.42	.40	.27	.27	.27	.24	.26	.22	.23	.21	.19	.03	.17
13	.39	.36	.25	.25	.24	.27	.23	.22	.21	.20	.19	.17	.03
14	.39	.36	.24	.23	.23	.22	.21	.22	.20	.20	.17	.18	.18

TABLE 4

COMPARISON OF FACTOR STRUCTURES FOR  
 RESOURCES  
 USING COEFFICIENTS OF CONGRUENCE

## FACTORS FOR DATABASE EXCEPT RESOURCES

RESOURCES	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.61	.50	.31	.47	.12	.32	.40	.44	.29	-.17	-.12	.06
2	.61	.99	.57	.40	.66	.17	.44	.43	.50	.40	-.26	-.21	.03
3	.49	.53	.99	.41	.46	.21	.31	.38	.34	.28	-.11	-.10	.01
4	.12	.17	.21	.36	.24	.99	.29	.23	.21	.19	.02	-.02	-.27
5	.46	.62	.49	.56	.99	.25	.48	.43	.47	.32	-.19	-.23	.00
6	.28	.35	.39	.99	.50	.34	.44	.46	.39	.23	.08	-.08	-.01
7	.33	.43	.34	.53	.46	.30	.98	.40	.39	.31	-.12	-.25	-.02
8	.40	.42	.39	.48	.42	.23	.35	.99	.37	.38	-.17	.07	.05
9	.45	.49	.37	.43	.51	.21	.36	.38	.99	.27	-.05	-.14	.04
10	.29	.41	.30	.25	.32	.19	.33	.37	.26	.98	-.27	-.05	.00
11	-.16	-.27	-.12	.06	-.18	.02	-.14	-.19	-.04	-.26	.99	.12	.02
12	.14	.23	.12	.16	.27	.03	.22	-.05	.15	.03	-.10	-.98	-.17
13	.05	.03	.00	-.01	.02	-.27	-.03	.03	.03	-.01	.05	.17	.98
14	.00	-.03	.05	.12	-.06	.13	.04	-.05	.02	-.04	.12	-.08	-.05

TABLE 5

COMPARISON OF FACTOR STRUCTURES FOR  
 RESOURCES  
 USING S-INDICES

FACTORS FOR DATABASE EXCEPT RESOURCES

RESOURCES	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.97	.92	.76	.46	.64	.11	.44	.52	.64	.36	-.05	-.02	.00
2	.95	.97	.75	.50	.68	.18	.52	.47	.62	.36	-.11	-.14	-.02
3	.78	.75	.87	.52	.48	.12	.31	.55	.44	.29	-.06	.00	.00
4	.19	.22	.22	.45	.25	.76	.40	.33	.29	.21	.13	-.21	-.32
5	.67	.68	.52	.51	.90	.23	.61	.44	.67	.32	-.07	-.23	.00
6	.43	.46	.49	.90	.54	.48	.53	.54	.46	.16	.09	-.12	.00
7	.49	.55	.44	.48	.51	.33	.83	.34	.58	.33	-.12	-.25	-.05
8	.50	.51	.57	.53	.38	.24	.29	.91	.40	.46	-.09	.12	.05
9	.62	.62	.49	.48	.68	.19	.56	.45	.90	.22	.00	-.18	.00
10	.43	.42	.38	.17	.27	.00	.29	.40	.25	.87	-.30	-.10	.00
11	-.07	-.13	-.03	.08	-.04	.14	-.09	-.09	.04	-.21	.96	.07	.00
12	.17	.16	.11	.18	.25	.33	.26	-.08	.29	.05	.06	-.81	-.17
13	.00	.00	.00	-.04	.00	-.32	-.09	.00	.00	-.08	.10	.15	.77
14	.00	.00	.11	.13	.03	.25	.14	-.11	.03	-.10	.11	-.10	.00

TABLE 6

COMPARISON OF FACTOR STRUCTURES FOR  
 RESOURCES  
 USING ROOT MEAN SQUARE

FACTORS FOR DATABASE EXCEPT RESOURCES

RESOURCES	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.02	.32	.33	.38	.34	.41	.37	.35	.34	.37	.43	.42	.40
2	.32	.03	.29	.33	.27	.38	.32	.32	.31	.33	.42	.41	.38
3	.33	.29	.02	.23	.22	.26	.24	.22	.22	.22	.27	.27	.25
4	.41	.37	.26	.24	.25	.02	.24	.24	.24	.23	.25	.25	.27
5	.34	.27	.21	.20	.03	.25	.20	.20	.19	.21	.27	.27	.24
6	.37	.33	.23	.03	.20	.23	.21	.20	.20	.22	.23	.25	.24
7	.36	.31	.24	.20	.21	.24	.03	.21	.20	.21	.26	.27	.24
8	.35	.32	.22	.20	.21	.24	.21	.02	.20	.19	.25	.22	.22
9	.34	.30	.22	.21	.19	.24	.21	.20	.02	.20	.23	.24	.21
10	.36	.32	.23	.23	.21	.23	.20	.19	.20	.02	.24	.21	.20
11	.43	.41	.28	.25	.27	.24	.26	.25	.23	.23	.02	.19	.19
12	.38	.34	.24	.24	.21	.24	.21	.23	.20	.20	.21	.28	.20
13	.39	.37	.25	.25	.24	.27	.24	.22	.21	.20	.19	.17	.03
14	.39	.37	.24	.23	.24	.22	.22	.22	.20	.19	.17	.18	.17

TABLE 7

 COMPARISON OF FACTOR STRUCTURES FOR  
 MAINTENANCE  
 USING COEFFICIENTS OF CONGRUENCE

## FACTORS FOR DATABASE EXCEPT MAINTENANCE

## MAINTENANCE

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.60	.49	.32	.13	.45	.33	.39	.44	.28	-.16	-.13	.06
2	.59	.99	.52	.38	.15	.62	.43	.42	.49	.40	-.27	-.20	.04
3	.51	.55	.99	.42	.21	.48	.33	.39	.37	.28	-.11	-.11	.02
4	.31	.37	.39	.99	.34	.53	.47	.47	.41	.24	.06	-.10	-.01
5	.48	.65	.48	.52	.22	.98	.45	.44	.51	.32	-.19	-.26	.05
6	.13	.16	.21	.34	.99	.24	.27	.24	.21	.16	.02	-.01	-.28
7	.31	.42	.31	.45	.26	.43	.98	.32	.37	.27	-.11	-.26	.00
8	.41	.44	.40	.50	.25	.44	.40	.99	.40	.39	-.18	.05	.04
9	.42	.47	.34	.42	.22	.44	.35	.37	.98	.27	-.03	-.12	.04
10	.27	.40	.28	.21	.5	.29	.31	.38	.26	.98	-.28	-.02	.01
11	-.14	-.24	-.12	-.17	.03	-.28	-.23	.01	-.13	-.06	.13	.96	.16
12	-.15	-.26	-.12	.05	.01	-.19	-.16	-.18	-.07	-.23	.99	.10	.03
13	.08	.07	.02	.03	-.26	.05	.00	.06	.06	.02	.05	.16	.96
14	.14	.25	.21	.34	.18	.44	.17	.17	.16	.05	.01	-.06	-.09
15	.21	.21	.12	.13	.01	.24	.21	.11	.30	-.03	-.05	.08	-.12

TABLE 8

COMPARISON OF FACTOR STRUCTURES FOR  
 MAINTENANCE  
 USING S-INDICES

## FACTORS FOR DATABASE EXCEPT MAINTENANCE

MAINTENANCE	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.98	.92	.76	.49	.18	.64	.49	.52	.63	.36	-.05	-.09	.00
2	.93	.96	.74	.46	.17	.64	.49	.52	.61	.36	-.16	-.15	.00
3	.74	.72	.86	.52	.16	.51	.40	.47	.49	.19	.00	-.09	.00
4	.47	.49	.56	.92	.41	.53	.51	.51	.47	.19	.08	-.07	.00
5	.65	.67	.56	.44	.23	.82	.49	.41	.61	.30	-.11	-.29	.00
6	.16	.20	.20	.44	.80	.25	.31	.27	.30	.11	.14	-.16	-.36
7	.37	.44	.38	.47	.41	.48	.79	.36	.48	.23	-.11	-.30	.00
8	.54	.51	.58	.54	.24	.39	.36	.81	.41	.44	-.09	.08	.00
9	.49	.48	.37	.49	.22	.57	.48	.39	.83	.22	.05	-.26	.00
10	.31	.34	.36	.18	.11	.28	.26	.49	.19	.78	-.27	.00	.00
11	-.07	-.14	-.08	-.11	-.29	-.21	-.23	.08	-.26	.00	.00	.86	.18
12	-.05	-.11	-.03	.08	.14	.00	-.09	-.09	.04	-.21	.96	.06	.00
13	-.03	-.05	.00	-.05	-.33	.00	-.05	.00	-.05	.00	.00	.08	.91
14	.14	.17	.20	.31	.13	.36	.19	.13	.13	-.09	.05	-.09	.00
15	.16	.13	-.05	.12	-.04	.23	.16	.06	.37	-.04	-.15	.08	.00

AD-A119 122

LEADERSHIP AND MANAGEMENT DEVELOPMENT CENTER MAXWELL--ETC F/G 5/1  
FACTOR STABILITY OF THE ORGANIZATIONAL ASSESSMENT PACKAGE. (U)  
AUG 82 J M HIGHTOWER, L O SHORT

UNCLASSIFIED

LMDC-TR-82-1

NL

2 x 2

2 x 2

2 x 2

END  
DATE  
FILED  
10.82  
DTH

TABLE 9

COMPARISON OF FACTOR STRUCTURES FOR  
 MAINTENANCE  
 USING ROOT MEAN SQUARE

## FACTORS FOR DATABASE EXCEPT MAINTENANCE

MAINTENANCE	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.02	.32	.32	.37	.40	.33	.36	.34	.33	.36	.42	.41	.39
2	.32	.03	.29	.32	.36	.26	.31	.31	.29	.31	.40	.39	.35
3	.33	.29	.02	.23	.26	.21	.24	.22	.22	.23	.27	.27	.25
4	.37	.33	.23	.03	.23	.19	.21	.20	.21	.22	.24	.26	.24
5	.33	.27	.22	.21	.25	.04	.21	.20	.19	.21	.27	.27	.23
6	.41	.37	.26	.24	.02	.25	.24	.24	.23	.23	.24	.24	.27
7	.37	.32	.24	.21	.24	.21	.04	.21	.20	.21	.25	.26	.23
8	.35	.31	.22	.20	.23	.20	.21	.02	.19	.19	.25	.22	.22
9	.34	.31	.22	.21	.23	.19	.21	.19	.03	.19	.22	.23	.20
10	.37	.32	.23	.24	.23	.21	.21	.19	.20	.03	.23	.21	.20
11	.42	.41	.27	.28	.25	.27	.27	.23	.24	.21	.19	.04	.17
12	.42	.41	.27	.25	.24	.26	.26	.25	.23	.23	.02	.19	.19
13	.39	.36	.25	.25	.26	.23	.23	.21	.21	.20	.19	.17	.03
14	.38	.34	.23	.21	.22	.18	.21	.20	.20	.19	.19	.19	.19
15	.37	.34	.23	.23	.23	.20	.20	.20	.18	.19	.19	.17	.18

TABLE 10

COMPARISON OF FACTOR STRUCTURES FOR  
 OPERATIONS  
 USING COEFFICIENTS OF CONGRUENCE

## FACTORS FOR DATABASE EXCEPT OPERATIONS

## OPERATIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.60	.51	.32	.47	.14	.32	.41	.44	.28	-.16	-.11	.06
2	.59	.99	.55	.40	.63	.17	.45	.43	.51	.40	-.27	-.20	.02
3	.45	.62	.50	.67	.95	.28	.45	.46	.49	.27	-.10	-.26	.02
4	.49	.53	.99	.42	.46	.22	.30	.40	.34	.29	-.12	-.07	.01
5	.16	.19	.24	.35	.26	.98	.25	.26	.23	.18	.04	-.03	-.28
6	.42	.47	.43	.52	.44	.24	.40	.97	.42	.41	-.19	.09	.05
7	.31	.43	.31	.47	.46	.24	.98	.32	.38	.29	-.17	-.24	.02
8	.45	.51	.36	.47	.57	.22	.40	.40	.95	.28	-.07	-.15	.06
9	.25	.31	.33	.90	.43	.25	.37	.41	.33	.25	.02	.07	.00
10	.29	.42	.31	.29	.35	.18	.30	.39	.30	.96	-.26	-.06	-.01
11	-.01	-.02	.09	.52	-.06	.17	.01	.00	.12	-.13	.39	-.24	.00
12	-.18	-.30	-.14	.05	-.17	.01	-.19	-.17	-.07	-.29	.94	.17	.03
13	.04	.02	-.01	-.04	.00	-.23	-.06	.12	-.04	.06	.04	.30	.85
14	-.07	-.16	-.04	-.05	-.16	-.01	-.15	.05	-.03	-.04	.11	.88	.26
15	.18	.24	.19	.16	.33	.00	.09	.16	.20	.17	-.08	-.21	.15

TABLE 11

COMPARISON OF FACTOR STRUCTURES FOR  
 OPERATIONS  
 USING S-INDICES

FACTORS FOR DATABASE EXCEPT OPERATIONS

OPERATIONS	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.98	.93	.78	.48	.67	.09	.48	.53	.65	.34	-.07	-.04	.00
2	.93	.97	.77	.50	.71	.15	.55	.51	.60	.33	-.13	-.10	.00
3	.69	.66	.65	.66	.82	.28	.57	.51	.69	.22	.00	-.18	-.04
4	.70	.67	.98	.45	.42	.10	.33	.57	.30	.27	-.04	.03	.00
5	.24	.22	.27	.48	.32	.70	.35	.33	.32	.22	.00	-.21	-.32
6	.63	.59	.65	.52	.44	.17	.35	.86	.43	.44	-.08	.13	.04
7	.45	.54	.38	.47	.60	.31	.81	.31	.50	.27	-.17	-.30	-.05
8	.59	.59	.44	.57	.71	.26	.60	.42	.82	.15	.04	-.22	.00
9	.44	.39	.46	.64	.50	.31	.43	.51	.49	.31	.15	.00	.00
10	.35	.36	.38	.18	.24	.06	.21	.56	.25	.72	-.27	.00	.00
11	-.02	-.04	.19	.28	-.03	.22	.11	.11	.11	-.17	.33	-.22	.00
12	-.20	-.27	-.23	.00	-.12	.12	-.19	-.15	-.11	-.35	.64	.06	.00
13	.11	.08	.16	.00	-.03	-.25	-.17	.14	-.10	.25	.00	.20	.29
14	-.10	-.15	-.09	.00	-.10	-.14	.00	.04	-.04	-.21	.17	.33	.35
15	.21	.19	.25	.06	.16	.00	.10	.20	.26	.24	-.17	-.28	.00

TABLE 12

COMPARISON OF FACTOR STRUCTURES FOR  
 OPERATIONS  
 USING ROOT MEAN SQUARE

## FACTORS FOR DATABASE EXCEPT OPERATIONS

## OPERATIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.02	.32	.32	.36	.33	.40	.36	.34	.33	.36	.42	.41	.39
2	.33	.03	.29	.32	.26	.37	.31	.31	.29	.31	.40	.39	.36
3	.34	.27	.22	.17	.07	.25	.21	.21	.20	.23	.27	.28	.25
4	.33	.30	.03	.23	.22	.26	.24	.22	.22	.22	.27	.26	.25
5	.40	.37	.26	.24	.25	.03	.24	.23	.23	.23	.24	.25	.27
6	.34	.31	.22	.20	.21	.24	.21	.04	.20	.19	.26	.23	.23
7	.37	.31	.24	.21	.20	.24	.04	.22	.20	.21	.26	.26	.23
8	.34	.30	.22	.20	.18	.23	.20	.19	.05	.19	.23	.24	.21
9	.37	.33	.22	.10	.20	.22	.20	.19	.19	.19	.21	.20	.21
10	.36	.31	.23	.22	.21	.23	.21	.19	.19	.04	.24	.21	.20
11	.41	.38	.25	.19	.26	.23	.25	.24	.21	.23	.16	.23	.20
12	.43	.41	.28	.25	.27	.25	.26	.25	.23	.24	.05	.18	.19
13	.40	.37	.26	.25	.24	.26	.24	.21	.22	.19	.19	.16	.07
14	.41	.39	.26	.26	.26	.24	.25	.22	.22	.20	.18	.07	.16
15	.38	.34	.23	.23	.20	.23	.22	.20	.19	.18	.19	.20	.16

TABLE 13

COMPARISON OF FACTOR STRUCTURES FOR  
 MEDICAL  
 USING COEFFICIENTS OF CONGRUENCE

## FACTORS FOR DATABASE EXCEPT MEDICAL

MEDICAL	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.59	.50	.32	.45	.13	.33	.38	.45	.27	-.14	-.13	.05
2	.59	.99	.54	.36	.61	.15	.41	.43	.48	.40	-.27	-.20	.03
3	.50	.53	.99	.39	.45	.21	.32	.40	.37	.29	-.12	-.10	.01
4	.44	.62	.47	.61	.98	.26	.45	.45	.48	.27	-.14	-.25	.01
5	.28	.32	.37	.97	.47	.34	.45	.45	.38	.22	.07	-.15	.00
6	.13	.15	.21	.35	.23	.98	.26	.25	.21	.14	.01	-.02	-.26
7	.31	.40	.30	.46	.42	.27	.98	.35	.37	.29	-.14	-.22	-.04
8	.38	.42	.39	.48	.41	.24	.41	.98	.38	.38	-.21	.06	.04
9	.45	.50	.36	.40	.52	.20	.39	.36	.96	.30	-.05	-.16	.03
10	.25	.37	.27	.21	.29	.12	.28	.34	.25	.97	-.22	-.05	.04
11	-.15	-.27	-.13	.07	-.21	.01	-.15	-.21	-.04	-.30	.95	.09	.00
12	-.14	-.22	-.10	-.12	-.20	-.02	-.23	.04	-.19	-.01	.11	.96	.21
13	.07	.06	.03	-.01	.04	-.25	.00	.05	.06	.02	.03	.11	.95
14	-.03	-.03	.00	.03	-.01	.10	-.05	.00	-.12	.08	.01	.04	-.01

TABLE 14

COMPARISON OF FACTOR STRUCTURES FOR  
MEDICAL  
USING S-INDICES

## FACTORS FOR DATABASE EXCEPT MEDICAL

MEDICAL	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.97	.92	.77	.48	.68	.14	.49	.51	.65	.36	-.05	-.02	.00
2	.95	.96	.73	.48	.68	.15	.51	.53	.61	.38	-.16	-.10	.00
3	.73	.70	.76	.48	.46	.13	.46	.52	.51	.25	-.03	-.03	.00
4	.63	.66	.56	.59	.88	.27	.61	.41	.65	.23	-.11	-.23	.00
5	.43	.47	.49	.84	.49	.42	.44	.51	.52	.22	.08	-.15	-.05
6	.21	.23	.32	.57	.32	.67	.38	.35	.31	.10	.18	-.15	-.30
7	.47	.55	.45	.44	.54	.38	.73	.34	.58	.30	-.13	-.23	.00
8	.46	.46	.52	.49	.33	.14	.38	.81	.38	.36	-.15	.04	.00
9	.39	.59	.42	.43	.63	.19	.53	.34	.85	.33	.00	-.19	.00
10	.32	.33	.34	.22	.19	.00	.27	.43	.23	.71	-.21	-.06	.00
11	-.23	-.21	-.17	.04	-.10	.13	-.12	-.24	-.08	-.48	.74	-.06	.00
12	-.11	-.16	-.08	-.07	-.21	-.27	-.29	.15	-.32	.00	.00	.84	.16
13	.05	.02	.03	.00	.04	-.24	-.05	-.05	.04	.00	.10	.08	.62
14	-.02	-.02	.09	.03	-.10	.13	.00	-.03	-.32	.04	-.05	.08	.00

TABLE 15

COMPARISON OF FACTOR STRUCTURES FOR  
 MEDICAL  
 USING ROOT MEAN SQUARE

FACTORS FOR DATABASE EXCEPT MEDICAL

MEDICAL	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.02	.33	.33	.37	.34	.40	.36	.35	.34	.37	.42	.42	.39
2	.33	.03	.29	.33	.27	.37	.32	.31	.30	.31	.41	.39	.36
3	.33	.30	.02	.24	.22	.26	.24	.22	.22	.22	.27	.27	.25
4	.34	.27	.22	.19	.04	.25	.21	.21	.20	.22	.27	.28	.24
5	.38	.34	.24	.05	.21	.23	.21	.20	.21	.23	.24	.26	.24
6	.41	.37	.26	.24	.25	.03	.24	.24	.24	.23	.25	.25	.27
7	.37	.32	.24	.21	.21	.24	.03	.21	.20	.20	.25	.26	.23
8	.35	.32	.22	.20	.21	.24	.21	.03	.20	.19	.26	.22	.22
9	.34	.30	.23	.21	.19	.24	.20	.20	.04	.19	.23	.24	.21
10	.37	.32	.23	.23	.22	.24	.21	.19	.20	.03	.23	.21	.20
11	.43	.41	.28	.25	.28	.25	.26	.26	.23	.24	.04	.19	.20
12	.42	.40	.27	.27	.26	.24	.26	.22	.24	.20	.18	.04	.16
13	.39	.36	.25	.25	.24	.26	.23	.22	.21	.20	.19	.18	.04
14	.40	.37	.24	.24	.23	.22	.23	.21	.21	.18	.18	.17	.17

TABLE 16

COMPARISON OF FACTOR STRUCTURES FOR  
 MISSILES  
 USING COEFFICIENTS OF CONGRUENCE

## FACTORS FOR DATABASE EXCEPT MISSILES

MISSILES	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.61	.51	.32	.47	.13	.34	.39	.46	.29	-.17	-.14	.05
2	.59	.99	.54	.39	.61	.16	.42	.43	.50	.41	-.26	-.19	.03
3	.48	.53	.98	.42	.47	.21	.33	.36	.36	.27	-.10	-.13	.00
4	.30	.37	.41	.97	.53	.29	.43	.48	.39	.26	.05	-.09	.01
5	.45	.64	.49	.58	.96	.26	.43	.45	.46	.29	-.14	-.21	.00
6	.12	.15	.20	.30	.22	.98	.22	.23	.21	.20	.00	-.01	-.30
7	.32	.43	.33	.44	.45	.25	.96	.30	.38	.30	-.18	-.21	-.01
8	.40	.44	.38	.49	.42	.24	.37	.96	.38	.43	-.20	.08	.03
9	.42	.48	.33	.43	.50	.22	.38	.35	.95	.29	-.07	-.13	-.01
10	.27	.40	.30	.23	.29	.19	.32	.35	.34	.93	-.27	-.07	-.01
11	-.11	-.18	-.09	-.09	-.22	.00	-.22	.06	-.11	-.08	.19	.86	.17
12	-.18	-.27	-.11	.04	-.17	-.01	-.17	-.18	-.14	-.27	.91	.17	-.01
13	.04	.01	-.02	.00	.02	-.28	-.01	.05	-.02	.03	.00	.22	.88
14	.33	.39	.32	.25	.49	.06	.23	.22	.42	.17	-.08	-.22	.10
15	.09	.04	.11	.37	.04	.14	.05	-.02	.18	-.08	.38	-.21	.08
16	.09	.07	.02	.12	.17	.05	.07	.04	.11	.03	.08	.15	-.05

TABLE 17

COMPARISON OF FACTOR STRUCTURES FOR  
 MISSILES  
 USING S-INDICES

## FACTORS FOR DATABASE EXCEPT MISSILES

MISSILES	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.98	.92	.77	.50	.67	.11	.47	.53	.64	.34	-.05	-.04	.00
2	.95	.96	.77	.50	.71	.15	.50	.53	.60	.38	-.16	-.06	.00
3	.68	.67	.76	.52	.52	.17	.38	.41	.46	.16	.04	-.10	.00
4	.51	.52	.59	.83	.57	.31	.49	.61	.57	.23	.04	-.12	-.05
5	.64	.66	.64	.62	.79	.27	.51	.46	.56	.26	-.04	-.20	-.04
6	.16	.16	.12	.34	.20	.63	.16	.16	.24	.18	-.07	-.12	-.40
7	.48	.57	.46	.43	.55	.33	.78	.36	.52	.29	-.16	-.25	.00
8	.51	.52	.52	.50	.35	.20	.38	.78	.37	.50	-.09	.12	.00
9	.63	.61	.43	.44	.68	.07	.46	.46	.77	.25	-.04	-.04	.00
10	.30	.35	.24	.10	.27	.11	.32	.29	.35	.56	-.30	-.05	.00
11	-.13	-.22	-.11	-.11	-.19	-.18	-.23	.04	-.23	-.17	.14	.63	.18
12	-.12	-.17	-.12	.00	-.07	.00	-.22	-.09	-.09	-.21	.52	.14	.13
13	.09	.06	.12	.00	.03	-.31	.00	.08	.04	.18	-.07	.18	.50
14	.40	.36	.29	.27	.41	.13	.35	.19	.50	.22	-.05	-.30	.00
15	.09	.04	.08	.32	.09	.34	.15	.04	.15	-.11	.40	-.17	.00
16	.06	.09	-.05	.18	.21	.17	.22	.03	.09	.00	-.05	.09	.00

TABLE 18

COMPARISON OF FACTOR STRUCTURES FOR  
 MISSILES  
 USING ROOT MEAN SQUARE

## FACTORS FOR DATABASE EXCEPT MISSILES

MISSILES	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.03	.32	.33	.37	.34	.41	.37	.35	.34	.37	.43	.42	.40
2	.32	.04	.29	.32	.27	.36	.31	.30	.29	.31	.40	.39	.36
3	.33	.29	.04	.23	.21	.26	.23	.22	.22	.22	.26	.27	.24
4	.37	.33	.23	.05	.19	.24	.21	.20	.21	.22	.24	.25	.24
5	.34	.27	.21	.19	.06	.24	.21	.20	.19	.21	.26	.27	.24
6	.41	.37	.26	.24	.25	.03	.24	.24	.23	.22	.24	.24	.27
7	.37	.32	.24	.22	.21	.24	.05	.22	.21	.21	.26	.26	.24
8	.35	.31	.23	.21	.21	.24	.22	.05	.20	.19	.26	.23	.23
9	.34	.30	.23	.21	.19	.23	.20	.20	.05	.19	.23	.23	.21
10	.37	.32	.22	.23	.21	.23	.20	.19	.18	.05	.23	.21	.20
11	.42	.40	.27	.27	.27	.25	.26	.22	.23	.22	.18	.07	.17
12	.43	.41	.27	.25	.26	.24	.26	.25	.23	.23	.06	.18	.19
13	.40	.37	.26	.25	.24	.27	.24	.22	.22	.20	.19	.17	.06
14	.36	.32	.22	.22	.18	.23	.21	.20	.16	.18	.20	.21	.17
15	.39	.36	.24	.20	.23	.22	.23	.22	.19	.20	.15	.20	.17
16	.38	.36	.24	.23	.21	.22	.22	.21	.19	.18	.17	.16	.17

TABLE 19

COMPARISON OF FACTOR STRUCTURES FOR  
 COMMUNICATIONS  
 USING COEFFICIENTS OF CONGRUENCE

## FACTORS FOR DATABASE EXCEPT COMMUNICATIONS

## COMMUNICATIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	.99	.59	.50	.31	.46	.14	.33	.39	.43	.28	-.17	-.13	.0	.0	.0	.0
2	.59	.99	.54	.37	.63	.16	.41	.40	.47	.39	-.25	-.20	.0	.0	.0	.0
3	.47	.50	.98	.37	.44	.20	.29	.35	.31	.27	-.10	-.08	.0	.0	.0	.0
4	.41	.44	.42	.56	.48	.27	.42	.97	.44	.39	-.17	.02	.0	.0	.0	.0
5	.46	.60	.49	.58	.96	.25	.42	.47	.52	.30	-.16	-.24	.0	.0	.0	.0
6	.15	.18	.22	.39	.28	.98	.30	.26	.22	.17	.03	-.02	-.21	.0	.0	.0
7	.29	.37	.27	.37	.38	.26	.96	.25	.34	.27	-.13	-.21	-.03	.0	.0	.0
8	.18	.21	.27	.86	.32	.30	.36	.28	.30	.12	.25	-.24	.01	.0	.0	.0
9	.40	.43	.32	.42	.44	.22	.33	.38	.96	.29	-.05	-.10	.02	.0	.0	.0
10	.26	.30	.33	.81	.47	.27	.35	.41	.38	.22	-.03	.08	-.08	.0	.0	.0
11	.26	.38	.28	.27	.30	.17	.32	.36	.27	.96	-.24	-.01	.01	.0	.0	.0
12	-.14	-.23	-.07	.07	-.14	.06	-.08	-.18	-.01	-.25	.93	.06	-.02	.0	.0	.0
13	-.11	-.16	-.06	-.04	-.18	.00	-.18	.11	-.07	.00	.10	.91	.19	.0	.0	.0
14	.00	.00	-.02	-.05	-.03	-.28	-.07	.01	-.05	.00	.01	.18	.92	.0	.0	.0
15	.12	.13	.13	.10	.27	.13	.01	.08	.10	.04	.01	-.05	-.07	.0	.0	.0
16	.14	.19	.30	-.02	.04	.02	.06	.10	.14	.12	-.11	-.25	.00	.0	.0	.0

TABLE 20

COMPARISON OF FACTOR STRUCTURES FOR  
 COMMUNICATIONS  
 USING S-INDICES

## FACTORS FOR DATABASE EXCEPT COMMUNICATIONS

## COMMUNICATIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.97	.93	.75	.50	.67	.13	.51	.50	.62	.33	-.05	-.07	-.03
2	.95	.96	.73	.46	.68	.15	.50	.48	.61	.37	-.14	-.09	.00
3	.70	.65	.72	.43	.48	.07	.44	.45	.44	.34	-.15	.03	.00
4	.58	.57	.58	.64	.45	.28	.34	.79	.46	.31	-.07	-.03	.00
5	.68	.68	.66	.61	.75	.19	.53	.52	.63	.28	-.07	-.12	.00
6	.25	.30	.36	.60	.34	.67	.43	.41	.26	.09	.05	-.14	-.27
7	.41	.50	.33	.35	.44	.29	.63	.18	.48	.29	-.14	-.12	-.06
8	.29	.29	.32	.62	.41	.41	.25	.46	.32	.13	.26	-.13	.00
9	.55	.53	.38	.49	.52	.25	.45	.49	.75	.29	.05	-.12	.00
10	.32	.36	.37	.63	.40	.35	.46	.44	.43	.13	.15	-.09	-.06
11	.31	.34	.31	.14	.18	.06	.33	.38	.15	.70	-.32	.11	.00
12	-.20	-.22	-.19	.00	-.09	.16	-.07	-.26	.00	-.47	.63	.00	.00
13	-.02	-.08	-.03	.00	-.13	-.13	-.16	.16	-.12	.00	.07	.61	.20
14	-.03	-.09	-.07	-.04	-.07	-.24	-.18	-.05	-.05	-.15	.10	.23	.62
15	.10	.09	.17	.12	.11	.17	.12	.03	.00	-.04	.00	-.09	.00
16	.08	.13	.15	-.03	.03	-.04	.00	.10	.16	.00	.15	-.13	.00

TABLE 21

COMPARISON OF FACTOR STRUCTURES FOR  
 COMMUNICATIONS  
 USING ROOT MEAN SQUARE

## FACTORS FOR DATABASE EXCEPT COMMUNICATIONS

## COMMUNICATIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.03	.33	.33	.37	.34	.40	.36	.35	.34	.37	.43	.42	.39
2	.33	.03	.29	.34	.27	.37	.32	.32	.31	.32	.41	.40	.37
3	.33	.30	.04	.24	.22	.26	.24	.22	.23	.22	.27	.26	.25
4	.35	.32	.23	.20	.21	.25	.22	.05	.20	.20	.27	.25	.24
5	.34	.28	.21	.19	.06	.25	.21	.20	.18	.21	.27	.27	.24
6	.40	.37	.26	.23	.24	.03	.23	.23	.23	.23	.24	.25	.27
7	.37	.33	.24	.22	.21	.23	.05	.22	.20	.20	.24	.25	.22
8	.39	.35	.24	.11	.22	.22	.21	.21	.20	.21	.19	.24	.21
9	.35	.31	.23	.21	.20	.23	.21	.19	.04	.19	.22	.23	.21
10	.37	.33	.22	.13	.19	.22	.20	.18	.18	.19	.21	.20	.21
11	.37	.32	.23	.22	.21	.23	.20	.19	.19	.04	.23	.20	.19
12	.42	.41	.27	.25	.26	.24	.25	.25	.23	.23	.05	.19	.19
13	.42	.39	.26	.26	.26	.24	.26	.21	.23	.20	.19	.06	.17
14	.40	.37	.26	.26	.24	.27	.24	.22	.22	.20	.19	.17	.05
15	.38	.35	.23	.23	.21	.22	.23	.21	.20	.19	.19	.19	.18
16	.38	.34	.21	.24	.23	.23	.22	.20	.19	.18	.19	.20	.16

TABLE 22

COMPARISON OF FACTOR STRUCTURES FOR  
 UNIQUE  
 USING COEFFICIENTS OF CONGRUENCE

## FACTORS FOR DATABASE EXCEPT UNIQUE

UNIQUE	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.60	.50	.32	.45	.13	.33	.41	.44	.28	-.16	-.12	.05
2	.60	.99	.55	.39	.63	.16	.45	.45	.49	.40	-.26	-.21	.04
3	.33	.41	.44	.98	.60	.34	.47	.50	.45	.23	.09	-.17	.01
4	.51	.55	.99	.42	.49	.21	.34	.41	.36	.31	-.12	-.11	.02
5	.11	.14	.19	.32	.21	.99	.27	.21	.18	.16	.01	-.02	-.28
6	.31	.42	.31	.43	.43	.26	.98	.34	.33	.32	-.16	-.26	-.03
7	.45	.62	.46	.50	.98	.22	.43	.44	.47	.32	-.20	-.21	.02
8	.39	.43	.38	.46	.42	.21	.34	.98	.35	.39	-.22	.07	.06
9	.44	.48	.35	.39	.49	.19	.33	.39	.99	.27	-.05	-.11	.05
10	.28	.40	.30	.26	.30	.17	.32	.39	.26	.98	-.26	-.02	.01
11	-.17	-.28	-.14	.02	-.21	-.01	-.19	-.21	-.08	-.27	.98	.13	.04
12	-.07	-.14	-.07	-.06	-.16	-.02	-.20	.13	-.05	-.03	.10	.96	.17
13	.05	.03	.02	-.01	-.02	-.25	-.05	.06	.00	.03	.02	.21	.97
14	-.02	.01	.04	.06	.10	.11	.01	-.03	-.04	-.01	.03	-.05	-.04

TABLE 23

 COMPARISON OF FACTOR STRUCTURES FOR  
 UNIQUE  
 USING S-INDICES

## FACTORS FOR DATABASE EXCEPT UNIQUE

UNIQUE	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.92	.76	.49	.66	.18	.47	.52	.62	.34	-.10	-.09	.00
2	.95	.96	.74	.52	.68	.19	.51	.53	.60	.36	-.09	-.10	.00
3	.53	.57	.59	.87	.58	.46	.49	.54	.54	.16	.10	-.09	-.04
4	.82	.83	.90	.59	.58	.23	.50	.63	.50	.36	-.05	-.05	.00
5	.09	.14	.15	.38	.23	.85	.28	.16	.16	.13	.15	-.29	-.40
6	.44	.55	.39	.41	.57	.34	.86	.26	.49	.31	-.17	-.33	-.05
7	.65	.63	.56	.46	.80	.10	.39	.42	.55	.24	-.23	-.13	.00
8	.51	.51	.60	.47	.37	.26	.34	.89	.40	.46	-.17	.04	.05
9	.64	.61	.39	.46	.71	.26	.56	.45	.90	.23	-.04	-.15	.00
10	.36	.36	.37	.18	.22	.11	.19	.48	.26	.83	-.32	.00	.00
11	-.07	-.15	-.06	.04	-.07	.13	-.04	-.17	.00	-.28	.83	.00	.00
12	-.06	-.15	-.08	-.07	-.17	-.20	-.21	.24	-.14	.05	.00	.71	.21
13	.00	-.04	.03	-.04	-.07	-.31	-.09	.09	-.05	.08	.10	.22	.77
14	.02	-.02	.13	.09	-.05	.09	.00	-.13	-.13	-.09	.10	-.09	.00

TABLE 24

COMPARISON OF FACTOR STRUCTURES FOR  
 UNIQUE  
 USING ROOT MEAN SQUARE

FACTORS FOR DATABASE EXCEPT UNIQUE

UNIQUE	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.02	.33	.33	.37	.34	.40	.36	.35	.34	.37	.43	.42	.39
2	.32	.02	.29	.33	.27	.37	.32	.31	.31	.32	.41	.40	.37
3	.37	.33	.24	.05	.20	.25	.22	.21	.22	.25	.26	.29	.26
4	.33	.29	.02	.23	.21	.27	.24	.22	.23	.23	.28	.27	.25
5	.41	.37	.26	.24	.25	.02	.24	.24	.24	.23	.24	.24	.26
6	.37	.32	.24	.22	.21	.24	.03	.22	.21	.20	.26	.27	.24
7	.34	.27	.21	.20	.03	.25	.21	.20	.19	.20	.26	.26	.23
8	.35	.31	.22	.20	.21	.24	.21	.03	.20	.18	.25	.22	.21
9	.34	.30	.23	.21	.19	.24	.21	.20	.02	.20	.23	.23	.21
10	.37	.32	.22	.23	.21	.23	.20	.19	.20	.02	.23	.21	.20
11	.43	.41	.28	.25	.27	.25	.26	.25	.23	.23	.03	.19	.19
12	.41	.39	.27	.26	.26	.25	.26	.21	.23	.21	.19	.04	.17
13	.39	.37	.25	.25	.24	.26	.24	.22	.21	.19	.19	.17	.03
14	.40	.36	.24	.23	.22	.22	.22	.22	.21	.19	.18	.18	.17

TABLE 25

COMPARISON OF FACTOR STRUCTURES FOR  
 FEMALES  
 USING COEFFICIENTS OF CONGRUENCE

## FACTORS FOR MALES

FEMALES	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.59	.50	.31	.13	.46	.32	.40	.44	.28	-.16	-.13	.05
2	.59	.99	.54	.37	.14	.60	.42	.42	.46	.40	-.26	-.19	.04
3	.50	.54	.99	.40	.20	.47	.33	.39	.34	.30	-.13	-.10	.01
4	.45	.64	.49	.58	.25	.97	.47	.44	.44	.30	-.16	-.23	-.01
5	.27	.34	.39	.98	.34	.51	.42	.46	.39	.21	.10	-.09	.00
6	.09	.11	.18	.32	.99	.19	.25	.21	.16	.16	.02	.00	-.25
7	.32	.42	.33	.49	.28	.44	.99	.38	.34	.32	-.14	-.22	-.03
8	.39	.42	.38	.47	.22	.42	.37	.99	.38	.37	-.19	.06	.04
9	.43	.47	.33	.40	.18	.51	.32	.35	.97	.27	-.05	-.16	.06
10	.27	.39	.29	.27	.17	.30	.32	.38	.28	.98	-.24	-.04	.00
11	-.16	-.27	-.13	.08	.02	-.17	-.14	-.19	-.07	-.27	.98	.11	.04
12	-.14	-.22	-.12	-.13	-.03	-.26	-.22	.04	-.13	-.03	.09	.98	.15
13	.08	.08	.05	.02	-.23	.08	.00	.08	.07	.03	.03	.15	.97
14	.25	.29	.17	.20	.04	.25	.19	.11	.41	-.02	-.01	.01	-.11
15	.13	.15	.07	-.02	-.08	.25	.02	.11	.12	.11	-.15	.01	.06

TABLE 26

COMPARISON OF FACTOR STRUCTURES FOR  
 FEMALES  
 USING S-INDICES

## FACTORS FOR MALES

FEMALES	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.91	.75	.48	.18	.67	.47	.50	.65	.36	-.10	-.07	.00
2	.93	.96	.73	.47	.17	.67	.53	.47	.60	.38	-.18	-.11	.00
3	.79	.74	.86	.50	.14	.50	.42	.55	.48	.38	-.13	-.03	.00
4	.64	.66	.60	.61	.27	.85	.57	.46	.64	.33	-.04	-.17	.00
5	.44	.46	.53	.92	.49	.52	.51	.51	.45	.11	.12	-.11	.00
6	.07	.12	.18	.35	.73	.20	.28	.17	.12	.12	.16	-.25	-.42
7	.43	.50	.38	.49	.43	.46	.82	.37	.46	.31	-.09	-.20	.00
8	.50	.45	.52	.54	.29	.37	.34	.84	.45	.38	-.15	.04	.06
9	.58	.56	.40	.43	.27	.59	.53	.37	.81	.24	.00	-.24	.00
10	.34	.32	.29	.22	.06	.19	.27	.37	.30	.80	-.30	.00	.00
11	-.10	-.15	-.06	.08	.13	-.10	-.08	-.13	-.04	-.25	.83	.06	.00
12	-.09	-.14	-.09	-.11	-.22	-.25	-.30	.08	-.22	.00	.00	.89	.17
13	.00	-.02	.00	.00	-.26	.00	-.05	.05	.00	.00	.00	.18	.89
14	.19	.19	.05	.16	.05	.32	.20	.07	.40	-.10	.06	.00	.00
15	.19	.15	.03	.00	-.14	.17	.03	.14	.26	.14	-.17	.00	.00

TABLE 27

COMPARISON OF FACTOR STRUCTURES FOR  
 FEMALES  
 USING ROOT MEAN SQUARE

## FACTORS FOR MALES

FEMALES	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.02	.33	.33	.37	.41	.34	.37	.35	.34	.37	.43	.42	.39
2	.32	.03	.28	.33	.37	.27	.31	.31	.30	.31	.40	.39	.35
3	.33	.30	.02	.24	.27	.22	.24	.22	.23	.23	.28	.27	.25
4	.34	.27	.21	.19	.25	.04	.21	.21	.20	.22	.27	.27	.24
5	.38	.34	.23	.03	.23	.20	.21	.20	.21	.23	.24	.26	.24
6	.41	.38	.27	.24	.03	.25	.24	.24	.24	.23	.24	.24	.26
7	.37	.32	.24	.21	.24	.21	.02	.21	.21	.21	.26	.26	.24
8	.35	.32	.22	.21	.24	.21	.21	.03	.20	.19	.25	.22	.22
9	.34	.31	.23	.22	.24	.19	.22	.20	.04	.20	.23	.24	.21
10	.37	.32	.23	.23	.23	.21	.21	.19	.19	.03	.23	.21	.20
11	.43	.41	.28	.25	.25	.27	.26	.25	.23	.24	.02	.19	.19
12	.42	.40	.27	.27	.25	.27	.26	.22	.23	.21	.19	.02	.17
13	.39	.36	.25	.25	.26	.23	.23	.21	.20	.20	.19	.17	.03
14	.37	.33	.23	.23	.23	.21	.21	.20	.16	.19	.18	.18	.18
15	.38	.35	.24	.25	.24	.20	.22	.20	.19	.18	.20	.18	.17

TABLE 28

COMPARISON OF FACTOR STRUCTURES FOR  
 WHITES  
 USING COEFFICIENTS OF CONGRUENCE

## FACTORS FOR DATABASE EXCEPT WHITES

WHITES	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.60	.32	.49	.46	.13	.34	.40	.45	.30	-.17	-.12	.07
2	.60	.99	.39	.53	.63	.16	.45	.44	.49	.41	-.28	-.19	.06
3	.50	.56	.42	.99	.49	.22	.36	.41	.38	.31	-.13	-.09	.03
4	.31	.40	.99	.41	.54	.35	.50	.50	.42	.26	.05	-.09	.02
5	.45	.64	.55	.46	.99	.24	.47	.46	.49	.31	-.18	-.21	.03
6	.13	.16	.35	.22	.24	.99	.28	.24	.21	.18	.02	.00	-.24
7	.33	.44	.48	.33	.45	.27	.99	.37	.36	.31	-.14	-.21	-.01
8	.40	.44	.49	.39	.44	.24	.39	.99	.39	.40	-.18	.08	.06
9	.44	.49	.43	.34	.49	.21	.37	.40	.99	.29	-.05	-.10	.06
10	.29	.41	.26	.30	.32	.17	.32	.39	.29	.99	-.24	-.02	.02
11	-.16	-.26	.07	-.12	-.18	.02	-.15	-.18	-.06	-.26	.99	.11	.05
12	-.12	-.20	-.12	-.09	-.25	-.01	-.22	.05	-.12	-.03	.12	.97	.14
13	.05	.03	-.01	.01	.03	-.23	-.02	.06	.02	.02	.03	.17	.98
14	.00	.02	.13	.04	.01	.11	.06	.01	.01	-.07	.07	.01	-.10

TABLE 29

COMPARISON OF FACTOR STRUCTURES FOR  
WHITES  
USING S-INDICES

## FACTORS FOR DATABASE EXCEPT WHITES

WHITES	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.96	.94	.48	.73	.63	.11	.49	.53	.63	.37	-.10	-.09	.00
2	.94	.98	.51	.71	.66	.14	.55	.50	.61	.39	-.11	-.16	-.02
3	.76	.74	.54	.87	.55	.21	.45	.55	.47	.35	.00	-.11	.00
4	.52	.50	.97	.53	.55	.42	.47	.53	.49	.20	.04	-.07	.05
5	.68	.67	.49	.45	.86	.20	.54	.42	.68	.30	-.07	-.22	-.04
6	.20	.16	.45	.15	.30	.91	.38	.19	.22	.05	.14	-.23	-.26
7	.53	.52	.47	.38	.54	.27	.87	.31	.50	.28	-.04	-.23	-.05
8	.50	.51	.51	.61	.45	.20	.35	.91	.43	.44	-.18	.12	.00
9	.64	.59	.45	.31	.62	.24	.59	.40	.94	.25	.04	-.23	.00
10	.35	.37	.21	.36	.37	.06	.34	.46	.22	.82	-.21	.00	.00
11	-.02	-.18	.12	-.10	-.04	.15	-.13	-.09	.04	-.30	.91	.07	.12
12	-.09	-.10	-.17	.03	-.23	-.29	-.29	.15	-.21	.05	-.07	.81	.08
13	.00	.00	-.04	.00	.00	-.40	.00	.05	.00	.00	.00	.18	.80
14	.02	.04	.09	.08	.09	.15	.10	-.03	.00	-.17	.11	.00	.07

TABLE 30

COMPARISON OF FACTOR STRUCTURES FOR  
 WHITES  
 USING ROOT MEAN SQUARE

## FACTORS FOR DATABASE EXCEPT WHITES

## WHITES

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.01	.32	.37	.33	.34	.40	.36	.35	.34	.36	.43	.42	.39
2	.33	.02	.33	.29	.27	.37	.31	.31	.30	.32	.41	.39	.36
3	.33	.29	.23	.02	.21	.26	.23	.22	.22	.22	.28	.27	.25
4	.37	.33	.02	.23	.20	.24	.20	.20	.21	.23	.25	.26	.25
5	.34	.27	.20	.21	.03	.25	.20	.20	.19	.21	.27	.26	.24
6	.41	.37	.24	.26	.25	.02	.24	.24	.23	.23	.24	.24	.26
7	.37	.32	.21	.24	.21	.24	.02	.21	.21	.21	.26	.26	.23
8	.35	.32	.20	.22	.21	.24	.21	.02	.19	.18	.25	.22	.22
9	.34	.30	.21	.22	.19	.23	.20	.19	.02	.19	.23	.23	.21
10	.37	.32	.23	.22	.21	.23	.20	.18	.19	.02	.23	.20	.20
11	.43	.41	.25	.27	.27	.24	.26	.25	.23	.23	.02	.19	.19
12	.42	.40	.27	.26	.27	.24	.26	.22	.23	.21	.19	.03	.18
13	.40	.37	.25	.25	.24	.26	.23	.21	.21	.20	.19	.17	.02
14	.40	.37	.23	.24	.23	.22	.22	.21	.20	.19	.17	.17	.18

TABLE 31

COMPARISON OF FACTOR STRUCTURES FOR  
 BLACKS  
 USING COEFFICIENTS OF CONGRUENCE

## FACTORS FOR DATABASE EXCEPT BLACKS

BLACKS	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.60	.51	.33	.46	.14	.34	.40	.44	.29	-.16	-.13	.04
2	.61	.99	.56	.41	.65	.17	.44	.44	.50	.40	-.25	-.20	.03
3	.34	.40	.43	.99	.56	.35	.47	.49	.45	.27	.06	-.11	.00
4	.49	.52	.99	.41	.46	.22	.32	.39	.34	.30	-.10	-.07	.00
5	.47	.62	.49	.53	.98	.24	.46	.42	.51	.32	-.18	-.25	.04
6	.16	.19	.24	.35	.27	.99	.28	.25	.23	.19	.01	.01	-.22
7	.35	.45	.36	.49	.47	.27	.99	.39	.38	.32	.15	-.20	-.01
8	.41	.44	.41	.50	.47	.25	.39	.99	.42	.40	-.18	.06	.05
9	.44	.48	.39	.44	.48	.22	.38	.39	.98	.29	-.04	-.13	.02
10	.30	.41	.32	.27	.29	.19	.31	.40	.30	.98	-.24	-.03	.02
11	-.16	-.25	-.12	.06	-.18	.02	-.13	-.17	-.06	-.23	.98	.13	.03
12	-.13	-.21	-.09	-.09	-.23	.02	-.20	.06	-.12	-.02	.12	.95	.16
13	.07	.06	.04	.01	.03	-.23	.01	.06	.05	.01	.04	.11	.97
14	.04	.07	.14	.19	.20	.14	.13	.01	.09	-.02	.09	-.16	-.02

TABLE 32

COMPARISON OF FACTOR STRUCTURES FOR  
 BLACKS  
 USING S-INDICES

## FACTORS FOR DATABASE EXCEPT BLACKS

BLACKS	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.95	.95	.76	.51	.68	.19	.50	.50	.63	.36	-.05	-.08	.00
2	.93	.98	.79	.55	.71	.20	.51	.52	.61	.36	-.09	-.08	.00
3	.54	.56	.57	.93	.51	.42	.51	.49	.47	.23	.11	-.13	-.04
4	.72	.68	.82	.48	.52	.16	.38	.56	.42	.35	-.11	.00	.00
5	.68	.70	.61	.55	.86	.31	.52	.43	.66	.28	-.03	-.18	.00
6	.20	.24	.27	.49	.27	.76	.37	.35	.33	.16	.13	-.11	-.25
7	.50	.57	.50	.51	.55	.36	.81	.40	.58	.29	-.12	-.18	.00
8	.53	.50	.54	.53	.44	.19	.32	.90	.40	.42	-.09	.15	.05
9	.60	.58	.44	.44	.61	.19	.46	.32	.90	.23	.09	-.19	.00
10	.40	.39	.43	.28	.21	.05	.33	.42	.32	.74	-.25	.00	.00
11	-.05	-.09	.00	.09	-.04	.15	.00	-.10	.09	-.15	.86	-.07	.00
12	-.12	-.19	-.14	-.15	-.23	-.24	-.20	.08	-.24	.00	.00	.76	.20
13	-.05	-.07	-.03	-.05	-.04	-.33	-.05	.00	-.05	.00	.00	.08	.73
14	.12	.11	.22	.15	.11	.17	.19	-.07	.09	-.09	.05	-.17	.00

TABLE 33

COMPARISON OF FACTOR STRUCTURES FOR  
 BLACKS  
 USING ROOT MEAN SQUARE

## FACTORS FOR DATABASE EXCEPT BLACKS

BLACKS	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.02	.32	.32	.37	.34	.40	.36	.35	.34	.36	.42	.42	.39
2	.32	.02	.29	.32	.26	.37	.31	.31	.30	.32	.41	.40	.36
3	.37	.33	.23	.02	.19	.24	.21	.20	.20	.22	.25	.27	.25
4	.33	.30	.03	.23	.21	.26	.24	.22	.22	.22	.27	.26	.25
5	.34	.27	.21	.20	.03	.25	.21	.21	.19	.21	.27	.27	.24
6	.40	.37	.26	.23	.24	.03	.24	.23	.23	.22	.24	.24	.26
7	.36	.31	.23	.21	.20	.24	.02	.21	.20	.20	.25	.26	.23
8	.35	.31	.22	.20	.20	.24	.21	.02	.19	.18	.25	.22	.22
9	.34	.30	.22	.21	.19	.23	.20	.19	.03	.19	.22	.23	.21
10	.36	.32	.22	.23	.21	.23	.21	.18	.19	.02	.23	.21	.20
11	.42	.41	.27	.25	.27	.24	.26	.25	.23	.23	.02	.18	.19
12	.42	.40	.27	.26	.27	.24	.26	.22	.23	.20	.18	.04	.17
13	.39	.36	.25	.25	.24	.26	.23	.22	.21	.20	.19	.18	.03
14	.39	.36	.23	.22	.21	.22	.21	.21	.20	.19	.17	.19	.17

TABLE 34  
 COMPARISON OF FACTOR STRUCTURES FOR  
 HISPANICS  
 USING COEFFICIENTS OF CONGRUENCE

FACTORS FOR DATABASE EXCEPT HISPANICS

HISPANICS	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.59	.49	.31	.44	.11	.32	.39	.44	.29	-.15	-.12	.05
2	.60	.99	.56	.39	.63	.16	.44	.43	.49	.41	-.26	-.19	.03
3	.31	.38	.41	.98	.55	.34	.47	.51	.41	.27	.08	-.09	.00
4	.48	.54	.99	.40	.45	.21	.33	.38	.33	.30	-.13	-.09	.01
5	.45	.62	.50	.57	.98	.25	.47	.46	.45	.30	-.18	-.23	.03
6	.10	.13	.20	.33	.21	.98	.24	.23	.19	.17	.03	.03	-.20
7	.35	.46	.36	.51	.49	.27	.98	.41	.36	.36	-.16	-.22	-.01
8	.39	.43	.40	.50	.45	.24	.38	.98	.39	.38	-.16	.03	.06
9	.45	.49	.37	.39	.49	.20	.35	.38	.99	.27	-.05	-.12	.03
10	.30	.41	.32	.27	.32	.18	.35	.39	.30	.98	-.27	-.03	.03
11	-.16	-.27	-.12	.07	-.19	.03	-.14	-.17	-.04	-.23	.98	.11	.04
12	-.10	-.16	-.09	-.07	-.17	.01	-.18	.11	-.07	-.02	.13	.97	.17
13	.06	.04	.02	.05	.04	-.19	-.01	.03	.06	.01	.08	.13	.96
14	.17	.21	.12	.07	.28	-.03	.04	.15	.23	.17	-.09	-.07	.12

TABLE 35

COMPARISON OF FACTOR STRUCTURES FOR  
 HISPANICS  
 USING S-INDICES

## FACTORS FOR DATABASE EXCEPT HISPANICS

HISPANICS		1	2	3	4	5	6	7	8	9	10	11	12	13
1	.98	.93	.76	.50	.66	.15	.50	.54	.61	.37	-.07	-.04	.00	
2	.95	.96	.76	.49	.66	.15	.52	.51	.59	.36	-.14	-.06	.00	
3	.48	.52	.56	.92	.56	.45	.53	.54	.50	.28	.12	-.07	.00	
4	.80	.77	.81	.49	.44	.12	.51	.54	.44	.38	-.13	.03	.00	
5	.64	.67	.64	.63	.74	.31	.61	.56	.55	.34	-.08	-.20	.00	
6	.14	.14	.24	.42	.17	.61	.20	.20	.12	.12	.07	.00	-.20	
7	.52	.56	.55	.58	.55	.38	.80	.43	.51	.34	-.09	-.26	.00	
8	.49	.51	.61	.55	.42	.30	.37	.87	.48	.42	-.04	.00	.05	
9	.62	.57	.41	.47	.63	.12	.46	.41	.89	.15	.00	-.12	.00	
10	.33	.34	.34	.18	.16	.11	.26	.42	.22	.72	-.27	.00	.00	
11	-.12	-.13	-.03	.04	-.07	.14	-.09	-.13	.00	-.28	.96	.00	.00	
12	-.05	-.11	-.03	.00	-.11	-.20	-.13	.22	-.13	.00	.08	.73	.24	
13	.00	-.02	.03	.04	.04	-.16	-.05	-.05	.05	.00	.21	.08	.67	
14	.08	.06	.03	-.13	.03	-.20	-.17	.11	.00	.20	-.06	.05	.00	

TABLE 37

COMPARISON OF FACTOR STRUCTURES FOR  
 OTHERS (RACE)  
 USING COEFFICIENTS OF CONGRUENCE

FACTORS FOR DATABASE EXCEPT OTHERS (RACE)

OTHERS (RACE)	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.60	.50	.31	.45	.12	.32	.39	.44	.29	-.17	-.12	.06
2	.60	.99	.55	.39	.65	.15	.44	.43	.50	.41	-.28	-.21	.05
3	.31	.38	.42	.99	.54	.36	.49	.49	.42	.26	.07	-.11	-.02
4	.50	.54	.99	.43	.48	.22	.35	.39	.35	.30	-.13	-.10	.01
5	.12	.15	.22	.35	.23	.99	.28	.23	.19	.17	.02	-.01	-.25
6	.45	.62	.49	.54	.99	.24	.45	.44	.48	.31	-.18	-.23	.03
7	.33	.45	.36	.51	.48	.28	.99	.40	.38	.33	-.15	-.22	-.01
8	.40	.44	.40	.49	.45	.23	.37	.99	.40	.38	-.17	.05	.08
9	.45	.49	.37	.43	.51	.20	.37	.41	.99	.29	-.06	-.12	.03
10	.30	.41	.30	.26	.32	.17	.32	.39	.29	.99	-.26	-.03	.02
11	-.18	-.29	-.13	.04	-.19	.01	-.15	-.17	-.06	-.24	.98	.13	.05
12	-.11	-.20	-.10	-.10	-.22	-.01	-.22	.06	-.09	-.02	.14	.98	.17
13	.07	.05	.01	.01	.03	-.25	-.02	.07	.05	.01	.06	.17	.98
14	.05	.09	.09	.23	.14	.16	.11	.04	.03	.01	.09	-.06	-.05

TABLE 38

COMPARISON OF FACTOR STRUCTURES FOR  
 OTHERS (RACE)  
 USING S-INDICES

## FACTORS FOR DATABASE EXCEPT OTHERS (RACE)

OTHERS (RACE)	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.97	.93	.74	.47	.66	.13	.44	.52	.61	.35	-.09	-.07	.00
2	.92	.99	.74	.50	.69	.18	.53	.50	.59	.36	-.15	-.12	-.02
3	.51	.53	.55	.94	.54	.46	.49	.56	.49	.23	.11	-.07	-.04
4	.73	.73	.92	.57	.48	.21	.40	.59	.35	.32	.00	-.06	.00
5	.09	.16	.23	.44	.25	.91	.35	.19	.19	.06	.14	-.23	-.36
6	.61	.63	.60	.53	.85	.27	.47	.47	.58	.34	-.11	-.20	.00
7	.49	.55	.46	.49	.52	.38	.86	.37	.51	.30	-.13	-.26	.00
8	.56	.53	.59	.57	.39	.22	.34	.90	.34	.41	-.08	.07	.05
9	.63	.61	.38	.53	.70	.25	.53	.42	.92	.22	.04	-.22	.00
10	.41	.40	.43	.17	.26	.05	.28	.49	.28	.85	-.29	-.05	.00
11	-.10	-.15	-.03	.04	-.07	.13	-.09	-.17	.00	-.33	.92	.00	.00
12	-.11	-.19	-.14	-.07	-.27	-.26	-.29	.11	-.29	.00	.06	.87	.15
13	-.05	-.09	-.03	-.09	-.04	-.37	-.09	-.09	-.05	.00	.10	.07	.71
14	.09	.08	.20	.18	.03	.22	.15	.00	-.04	.06	.00	-.11	.00

TABLE 39

COMPARISON OF FACTOR STRUCTURES FOR  
 OTHERS (RACE)  
 USING ROOT MEAN SQUARE

FACTORS FOR DATABASE EXCEPT OTHERS (RACE)

OTHERS (RACE)	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.01	.33	.33	.38	.34	.41	.37	.35	.34	.37	.43	.42	.40
2	.33	.82	.30	.34	.27	.38	.32	.32	.31	.33	.42	.41	.38
3	.37	.33	.23	.02	.20	.24	.21	.20	.21	.23	.25	.27	.25
4	.33	.29	.02	.23	.21	.26	.23	.22	.22	.22	.27	.27	.25
5	.41	.37	.26	.24	.25	.01	.24	.24	.24	.23	.25	.25	.26
6	.34	.27	.21	.20	.02	.25	.21	.20	.19	.21	.27	.27	.24
7	.36	.31	.23	.20	.20	.24	.02	.21	.20	.20	.26	.26	.24
8	.35	.31	.22	.20	.20	.24	.21	.02	.19	.19	.25	.22	.21
9	.34	.30	.22	.21	.19	.24	.21	.19	.02	.19	.23	.23	.21
10	.36	.32	.22	.23	.21	.23	.20	.18	.19	.02	.23	.21	.20
11	.43	.41	.27	.25	.27	.24	.26	.25	.23	.23	.02	.18	.19
12	.42	.40	.27	.26	.27	.24	.26	.22	.23	.21	.18	.02	.17
13	.39	.36	.25	.25	.24	.26	.24	.21	.21	.20	.19	.17	.02
14	.39	.36	.24	.22	.22	.22	.22	.21	.21	.20	.19	.19	.18

TABLE 36

COMPARISON OF FACTOR STRUCTURES FOR  
 HISPANICS  
 USING ROOT MEAN SQUARE

## FACTORS FOR DATABASE EXCEPT HISPANICS

HISPANICS		1	2	3	4	5	6	7	8	9	10	11	12	13
1	.03	.33	.34	.38	.35	.41	.37	.36	.35	.37	.43	.42	.40	
2	.33	.02	.29	.33	.27	.38	.32	.32	.31	.32	.41	.40	.37	
3	.37	.33	.24	.03	.20	.24	.21	.20	.21	.23	.25	.27	.25	
4	.33	.29	.03	.23	.22	.26	.24	.22	.23	.22	.27	.26	.25	
5	.34	.27	.21	.19	.04	.25	.21	.20	.20	.22	.27	.27	.24	
6	.41	.38	.26	.24	.25	.03	.24	.24	.24	.23	.24	.24	.26	
7	.36	.31	.23	.20	.20	.24	.03	.20	.21	.20	.26	.26	.23	
8	.35	.31	.22	.20	.20	.23	.21	.03	.19	.18	.25	.22	.21	
9	.34	.30	.22	.22	.19	.24	.21	.20	.02	.20	.23	.23	.21	
10	.36	.32	.22	.23	.21	.23	.20	.18	.19	.03	.23	.21	.19	
11	.43	.41	.28	.25	.27	.24	.26	.25	.23	.23	.03	.19	.19	
12	.41	.39	.27	.26	.26	.24	.25	.21	.22	.20	.18	.03	.17	
13	.39	.37	.25	.25	.24	.26	.24	.22	.21	.20	.19	.18	.04	
14	.38	.34	.24	.24	.20	.24	.22	.20	.18	.17	.19	.19	.16	

TABLE 40

COMPARISON OF FACTOR STRUCTURES FOR  
 ENLISTEDS  
 USING COEFFICIENTS OF CONGRUENCE

## FACTORS FOR DATABASE EXCEPT ENLISTEDS

ENLISTEDS	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.62	.50	.30	.10	.30	.40	.46	.43	.28	-.17	-.08	.06
2	.62	.99	.53	.37	.12	.40	.45	.51	.61	.40	-.25	-.13	.05
3	.50	.55	.99	.40	.18	.29	.39	.36	.44	.29	-.13	-.06	.04
4	.31	.38	.40	.98	.32	.45	.48	.43	.49	.25	.07	-.03	.00
5	.47	.62	.47	.57	.18	.39	.47	.58	.96	.31	-.18	-.18	.08
6	.12	.14	.19	.33	.99	.25	.22	.21	.20	.17	.02	.01	-.22
7	.33	.42	.30	.47	.25	.98	.39	.37	.43	.32	-.16	-.17	.00
8	.41	.44	.39	.48	.21	.36	.98	.36	.43	.40	-.21	.11	.09
9	.44	.50	.34	.42	.21	.36	.36	.96	.39	.27	-.04	-.08	-.01
10	.29	.39	.29	.21	.16	.30	.38	.27	.30	.99	-.27	.01	.03
11	-.17	-.26	-.12	.08	.03	-.14	-.18	-.06	-.19	-.25	.98	.11	.02
12	-.12	-.18	-.08	-.11	.01	-.19	.06	-.17	-.14	-.02	.09	.97	.18
13	.06	.06	.03	.02	-.24	-.01	.07	.03	.03	.01	.04	.18	.96
14	.05	.07	.11	.19	.12	.06	.06	.04	.23	-.03	.04	-.04	-.07

TABLE 41

COMPARISON OF FACTOR STRUCTURES FOR  
ENLISTEDS  
USING S-INDICES

## FACTORS FOR DATABASE EXCEPT ENLISTEDS

ENLISTEDS	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.97	.99	.74	.49	.15	.49	.58	.59	.57	.40	-.09	-.02	-.02
2	.93	.97	.71	.47	.15	.52	.57	.56	.57	.40	-.20	-.06	-.05
3	.78	.75	.83	.53	.17	.37	.59	.43	.48	.38	-.06	.03	.00
4	.50	.53	.53	.90	.42	.44	.55	.45	.49	.20	.08	.03	-.04
5	.66	.67	.49	.53	.22	.47	.48	.66	.77	.30	-.13	-.12	-.04
6	.14	.13	.13	.43	.79	.24	.23	.24	.16	.11	.14	-.17	-.33
7	.47	.52	.27	.45	.31	.74	.36	.54	.43	.25	-.13	-.15	-.09
8	.53	.54	.59	.59	.19	.35	.89	.31	.52	.51	-.08	.22	.05
9	.58	.55	.35	.52	.20	.42	.37	.91	.36	.26	.04	-.15	-.05
10	.34	.37	.28	.18	.12	.32	.41	.23	.31	.86	-.27	-.05	.00
11	-.12	-.11	-.07	.08	.14	-.18	-.17	.04	-.18	-.26	.92	.00	.11
12	-.05	-.04	.03	-.07	-.24	-.16	.04	-.23	-.08	.05	.07	.81	.16
13	.00	.00	.00	-.04	-.36	-.05	.05	.00	.00	.00	.00	.24	.62
14	.08	.08	.16	.12	.19	.14	.06	.07	.13	-.04	.00	.09	-.12

TABLE 42

COMPARISON OF FACTOR STRUCTURES FOR  
 ENLISTEDS  
 USING ROOT MEAN SQUARE

## FACTORS FOR DATABASE EXCEPT ENLISTEDS

ENLISTEDS	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.03	.32	.33	.37	.41	.37	.35	.34	.34	.37	.43	.41	.39
2	.32	.04	.29	.33	.38	.32	.31	.30	.27	.32	.41	.39	.36
3	.33	.29	.02	.24	.26	.24	.22	.23	.21	.22	.28	.26	.25
4	.37	.33	.24	.04	.24	.21	.21	.21	.20	.23	.25	.26	.25
5	.34	.27	.22	.20	.26	.22	.21	.18	.06	.22	.27	.27	.24
6	.41	.38	.27	.24	.02	.24	.24	.24	.24	.23	.25	.24	.26
7	.36	.32	.25	.21	.24	.03	.21	.21	.20	.20	.26	.25	.23
8	.35	.31	.22	.20	.24	.21	.03	.21	.19	.18	.25	.21	.21
9	.34	.30	.23	.21	.23	.20	.20	.05	.19	.19	.22	.22	.21
10	.37	.32	.23	.24	.23	.20	.19	.20	.20	.02	.24	.20	.20
11	.43	.41	.28	.25	.24	.25	.26	.24	.25	.23	.02	.19	.19
12	.42	.39	.27	.27	.24	.26	.23	.25	.24	.21	.19	.03	.17
13	.39	.36	.25	.25	.26	.23	.22	.22	.22	.20	.19	.17	.03
14	.39	.36	.24	.23	.21	.22	.21	.21	.19	.19	.18	.18	.18

TABLE 43

COMPARISON OF FACTOR STRUCTURES FOR  
 OFFICERS  
 USING COEFFICIENTS OF CONGRUENCE

## FACTORS FOR DATABASE EXCEPT OFFICERS

OFFICERS	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.60	.49	.31	.45	.12	.32	.40	.43	.27	-.17	-.11	.06
2	.61	.99	.56	.39	.62	.15	.44	.46	.51	.41	-.27	-.19	.06
3	.33	.41	.42	.97	.59	.33	.51	.50	.46	.23	.06	-.15	.05
4	.50	.55	.99	.41	.48	.19	.29	.41	.35	.28	-.12	-.08	.04
5	.29	.42	.27	.41	.45	.25	.97	.31	.34	.30	-.20	-.23	-.02
6	.14	.17	.21	.36	.25	.99	.26	.27	.19	.18	.01	.02	-.24
7	.42	.47	.41	.49	.44	.24	.39	.98	.41	.39	-.20	.06	.03
8	.41	.60	.45	.55	.95	.22	.40	.45	.42	.26	-.17	-.15	.00
9	.45	.52	.36	.44	.60	.20	.39	.39	.94	.31	-.09	-.15	.05
10	.28	.42	.28	.25	.33	.16	.31	.39	.30	.98	-.26	-.06	.01
11	-.15	-.26	-.13	.02	-.20	-.03	-.20	-.16	-.10	-.27	.96	.11	.07
12	-.07	-.14	-.02	-.03	-.17	.02	-.18	.12	-.04	.00	.11	.92	.19
13	.04	.03	.00	.00	.02	-.23	-.06	.03	-.02	.03	.07	.23	.93
14	.08	.13	.08	-.10	.27	-.08	.06	.11	.05	.13	-.22	-.09	.06
15	.24	.18	.10	.18	.15	.03	.10	.09	.29	-.04	.09	.14	-.10

TABLE 44

COMPARISON OF FACTOR STRUCTURES FOR  
 OFFICERS  
 USING S-INDICES

## FACTORS FOR DATABASE EXCEPT OFFICERS

OFFICERS	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.96	.92	.76	.49	.69	.14	.44	.53	.62	.26	-.05	-.05	.00
2	.93	.97	.78	.54	.71	.15	.52	.57	.58	.33	-.09	-.02	.00
3	.49	.51	.54	.88	.59	.45	.54	.56	.55	.17	.08	-.10	-.04
4	.77	.72	.84	.53	.49	.13	.29	.60	.41	.22	-.03	.03	.00
5	.45	.53	.38	.47	.57	.24	.76	.34	.46	.31	-.17	-.27	-.05
6	.13	.14	.25	.50	.27	.82	.30	.30	.19	.12	.07	-.11	-.35
7	.62	.62	.61	.56	.51	.25	.44	.86	.48	.39	-.12	.03	.00
8	.55	.54	.51	.48	.78	.24	.49	.52	.57	.24	-.09	-.16	.00
9	.61	.57	.46	.48	.61	.20	.52	.46	.72	.33	-.05	-.16	.00
10	.37	.37	.41	.18	.26	.11	.25	.51	.23	.80	-.27	.06	.00
11	-.12	-.18	-.06	.08	-.03	.15	-.13	-.13	.09	-.37	.73	-.07	.00
12	-.07	-.09	.03	-.11	-.19	-.19	-.20	.20	-.12	-.19	.00	.63	.20
13	-.03	-.05	.03	.00	.00	-.17	.00	.05	-.05	.00	.11	.17	.50
14	.13	.14	.10	.00	.14	-.05	.17	.03	.14	.20	-.29	-.24	.00
15	.19	.17	-.03	.19	.33	.05	.13	.10	.45	.05	.11	.20	.00

TABLE 45

COMPARISON OF FACTOR STRUCTURES FOR  
 OFFICERS  
 USING ROOT MEAN SQUARE

## FACTORS FOR DATABASE EXCEPT OFFICERS

OFFICERS	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.03	.32	.32	.36	.33	.39	.35	.33	.33	.35	.41	.40	.38
2	.32	.03	.29	.32	.27	.37	.31	.30	.29	.31	.41	.39	.36
3	.37	.33	.24	.05	.20	.25	.21	.21	.22	.24	.26	.29	.26
4	.33	.29	.03	.24	.22	.27	.25	.22	.23	.23	.28	.27	.25
5	.37	.32	.25	.22	.21	.24	.05	.22	.21	.21	.26	.26	.24
6	.40	.37	.26	.23	.24	.02	.24	.23	.23	.22	.24	.23	.26
7	.35	.30	.22	.20	.21	.24	.21	.04	.20	.19	.26	.23	.22
8	.35	.28	.21	.19	.06	.24	.21	.19	.19	.21	.25	.25	.22
9	.34	.30	.23	.21	.17	.24	.21	.19	.06	.19	.24	.24	.21
10	.37	.31	.23	.23	.21	.23	.21	.19	.19	.03	.24	.21	.20
11	.43	.41	.27	.25	.27	.25	.26	.25	.23	.23	.04	.19	.18
12	.41	.39	.26	.25	.27	.24	.26	.21	.22	.20	.19	.05	.17
13	.40	.36	.25	.25	.24	.26	.24	.22	.22	.19	.18	.16	.05
14	.39	.35	.24	.26	.21	.24	.23	.21	.21	.18	.21	.19	.17
15	.37	.34	.24	.22	.22	.23	.22	.20	.18	.19	.18	.17	.18

TABLE 46

COMPARISON OF FACTOR STRUCTURES FOR  
 CIVILIANS  
 USING COEFFICIENTS OF CONGRUENCE

## FACTORS FOR DATABASE EXCEPT CIVILIANS

## CIVILIANS

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.63	.51	.32	.48	.12	.33	.41	.45	.30	-.18	-.12	.05
2	.62	.99	.55	.37	.61	.14	.41	.44	.49	.39	-.25	-.19	.05
3	.50	.54	.99	.39	.46	.19	.30	.38	.34	.29	-.12	-.09	.02
4	.26	.32	.37	.97	.49	.33	.42	.44	.38	.19	.12	-.10	-.01
5	.08	.10	.17	.31	.15	.98	.25	.19	.17	.16	.03	.00	-.24
6	.31	.41	.31	.49	.40	.28	.98	.39	.38	.32	-.12	-.20	-.04
7	.49	.54	.37	.42	.63	.18	.37	.37	.95	.28	-.06	-.20	.05
8	.46	.65	.48	.55	.95	.24	.44	.46	.42	.31	-.16	-.14	.00
9	.41	.44	.38	.48	.44	.21	.35	.98	.36	.37	-.18	.07	.07
10	.30	.41	.31	.27	.31	.19	.33	.40	.30	.98	-.25	-.02	.00
11	-.20	-.28	-.15	.05	-.21	.03	-.15	-.24	-.07	-.25	.96	.10	.04
12	-.07	-.12	-.06	-.05	-.15	-.02	-.16	.13	-.06	.01	.09	.97	.20
13	.09	.08	.06	.04	.12	-.20	-.01	.11	.04	.01	.04	.17	.96
14	-.02	-.02	.01	.09	-.17	.08	.02	-.06	.14	-.11	.11	-.04	-.08

TABLE 47

COMPARISON OF FACTOR STRUCTURES FOR  
 CIVILIANS  
 USING S-INDICES

## FACTORS FOR DATABASE EXCEPT CIVILIANS

CIVILIANS	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.97	.91	.79	.50	.64	.14	.45	.51	.63	.36	-.12	-.04	.00
2	.97	.95	.76	.53	.64	.15	.50	.52	.60	.38	-.14	-.06	.00
3	.80	.73	.81	.49	.47	.12	.33	.51	.47	.33	-.10	-.03	.00
4	.45	.47	.50	.86	.49	.48	.42	.51	.46	.18	.13	-.11	-.05
5	.13	.16	.20	.36	.16	.73	.31	.16	.15	.18	.07	-.24	-.38
6	.46	.50	.41	.44	.42	.33	.78	.36	.49	.36	-.09	-.24	.00
7	.61	.59	.47	.45	.70	.23	.54	.35	.92	.19	.00	-.23	.00
8	.62	.61	.55	.58	.74	.19	.48	.51	.47	.33	-.13	-.07	.00
9	.58	.50	.57	.49	.41	.24	.32	.84	.29	.39	-.14	.04	.05
10	.41	.39	.35	.23	.25	.11	.29	.48	.28	.79	-.26	.05	.00
11	-.13	-.18	-.08	.07	-.16	.12	-.08	-.16	.00	-.29	.74	.00	.00
12	-.04	-.10	-.03	-.04	-.16	-.18	-.16	.16	-.19	-.12	.00	.76	.29
13	.05	.00	.03	.04	.07	-.31	-.05	.09	.09	.07	.10	.07	.57
14	.06	.04	.05	.19	.00	.20	.03	-.04	.13	-.20	.18	-.05	.00

TABLE 48

COMPARISON OF FACTOR STRUCTURES FOR  
 CIVILIANS  
 USING ROOT MEAN SQUARE

## FACTORS FOR DATABASE EXCEPT CIVILIANS

## CIVILIANS

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.04	.32	.33	.38	.34	.41	.37	.35	.35	.37	.44	.43	.40
2	.31	.04	.29	.33	.27	.37	.32	.31	.30	.32	.40	.39	.36
3	.33	.29	.02	.24	.22	.27	.25	.23	.23	.23	.28	.27	.26
4	.38	.34	.23	.05	.20	.23	.21	.20	.21	.23	.23	.26	.24
5	.41	.38	.27	.24	.26	.03	.24	.24	.23	.23	.24	.24	.26
6	.37	.32	.24	.21	.22	.24	.03	.21	.20	.21	.26	.26	.24
7	.33	.29	.23	.22	.17	.25	.21	.21	.06	.21	.24	.26	.22
8	.33	.27	.21	.19	.06	.24	.20	.19	.19	.20	.25	.25	.23
9	.34	.31	.22	.21	.21	.24	.21	.03	.20	.19	.25	.22	.22
10	.36	.32	.22	.23	.21	.23	.20	.18	.19	.02	.23	.21	.20
11	.43	.41	.28	.26	.28	.25	.26	.26	.23	.24	.04	.19	.19
12	.41	.39	.26	.26	.26	.25	.25	.21	.22	.20	.19	.03	.17
13	.39	.36	.25	.25	.23	.26	.24	.21	.21	.20	.19	.17	.03
14	.39	.37	.24	.23	.25	.22	.22	.22	.18	.20	.17	.18	.17

TABLE 49

COMPARISON OF FACTOR STRUCTURES FOR  
 PRE AND POST INTERVENTION  
 USING COEFFICIENTS OF CONGRUENCE

## FACTORS FOR PRE INTERVENTION

POST	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.99	.62	.52	.34	.48	.15	.35	.42	.47	.30	-.17	-.12	.05
2	.61	.99	.57	.42	.64	.18	.45	.45	.51	.41	-.26	-.20	.03
3	.35	.43	.45	.99	.59	.36	.51	.52	.45	.29	.05	-.13	.00
4	.51	.56	.99	.43	.49	.23	.35	.40	.36	.31	-.12	-.10	.01
5	.17	.21	.26	.38	.28	.99	.31	.26	.24	.20	-.01	-.03	-.26
6	.35	.46	.36	.49	.47	.30	.99	.38	.37	.33	-.15	-.24	-.03
7	.47	.63	.49	.53	.99	.23	.45	.44	.49	.32	-.18	-.21	.02
8	.42	.45	.41	.49	.46	.24	.38	.99	.40	.41	-.19	.06	.06
9	.46	.51	.37	.43	.49	.21	.36	.39	.99	.28	-.07	-.12	.03
10	.31	.43	.33	.29	.33	.19	.34	.43	.30	.99	-.24	-.03	.03
11	-.18	-.28	-.13	.05	-.19	.00	-.16	-.20	-.07	-.26	.99	.11	.06
12	-.12	-.20	-.10	-.12	-.23	-.02	-.24	.08	-.13	-.01	.10	.99	.16
13	.06	.04	.01	.01	.04	-.26	-.02	.08	.05	.01	.05	.19	.98
14	.06	.10	.11	.19	.20	.15	.13	.04	.05	.01	.03	-.09	-.08

TABLE 50

COMPARISON OF FACTOR STRUCTURES FOR  
PRE AND POST INTERVENTION  
USING S-INDICES

## FACTORS FOR PRE INTERVENTION

POST	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.96	.96	.74	.52	.68	.19	.52	.54	.61	.38	-.07	-.08	.00
2	.92	.98	.76	.55	.71	.20	.51	.54	.59	.36	-.11	-.08	.00
3	.54	.57	.56	.93	.58	.48	.51	.48	.48	.23	.07	-.10	-.08
4	.86	.83	.91	.56	.61	.20	.52	.58	.52	.40	-.05	-.05	.00
5	.25	.30	.31	.57	.34	.84	.47	.40	.33	.28	.05	-.19	-.27
6	.57	.63	.51	.50	.57	.33	.86	.36	.57	.30	-.11	-.23	-.04
7	.64	.65	.53	.52	.91	.27	.49	.47	.62	.30	-.11	-.17	.00
8	.53	.51	.60	.47	.37	.19	.37	.94	.40	.49	-.13	.08	.05
9	.64	.62	.40	.47	.71	.21	.52	.38	.96	.25	.04	-.21	.00
10	.40	.39	.39	.24	.21	.16	.33	.51	.33	.84	-.25	.05	.00
11	-.10	-.13	-.03	.04	-.07	.14	-.09	-.13	.00	-.28	.96	.00	.00
12	-.09	-.18	-.08	-.10	-.27	-.32	-.29	.11	-.25	.00	.06	.95	.16
13	.00	-.02	.00	-.05	.00	-.35	-.05	.05	.00	.00	.00	.17	1.00
14	.11	.10	.21	.16	.06	.20	.14	-.07	.00	-.05	.00	-.10	.00

TABLE 51

COMPARISON OF FACTOR STRUCTURES FOR  
 PRE AND POST INTERVENTION  
 USING ROOT MEAN SQUARE

## FACTORS FOR PRE INTERVENTION

POST	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.02	.32	.33	.38	.34	.41	.37	.35	.35	.37	.44	.43	.41
2	.32	.02	.30	.33	.28	.38	.32	.32	.31	.33	.42	.41	.38
3	.37	.32	.23	.02	.20	.24	.21	.20	.21	.23	.26	.28	.26
4	.33	.29	.01	.23	.21	.26	.24	.22	.22	.22	.28	.27	.25
5	.40	.36	.26	.23	.25	.02	.23	.23	.23	.23	.25	.25	.27
6	.36	.31	.24	.21	.21	.24	.01	.21	.21	.21	.26	.27	.24
7	.33	.27	.21	.20	.02	.24	.20	.20	.18	.20	.26	.26	.23
8	.34	.31	.22	.20	.20	.24	.21	.01	.19	.18	.25	.22	.21
9	.34	.30	.22	.21	.19	.24	.21	.20	.01	.19	.23	.23	.21
10	.36	.31	.22	.22	.21	.23	.20	.18	.19	.01	.23	.21	.20
11	.43	.41	.28	.25	.27	.25	.26	.25	.23	.23	.01	.19	.19
12	.42	.40	.27	.27	.27	.25	.27	.22	.24	.21	.19	.02	.17
13	.39	.37	.25	.25	.24	.27	.24	.21	.21	.20	.19	.17	.02
14	.39	.35	.23	.22	.21	.21	.21	.21	.20	.19	.18	.19	.18

